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AN INTRODUCTION TO PERSONALITY STUDY

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PSYCHOLOGY

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General Psychology
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Crooked Personalities in Childhood and After
The Fight for Our National Intelligence
The Description and Measurement of Personality
Psychology and the Religious Quest
Personality: A Systematic Theoretical and Factual Study

AN INTRODUCTION TO PERSONALITY STUDY

by

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CONTENTS

Chapter

I PROBLEMS OF PERSONALITY STUDY *Page* 13

(1) The Importance of Personality Study;
(2) Methods and Sources of Knowledge;
(3) Statistics on Life Record often Better than Experimentation;
(4) What do we mean by Personality?
(5) The Preliminary Description of Personality;
(6) The Manner of Approach to Personality Study.

II INHERITED, CONSTITUTIONAL INFLUENCES IN PERSONALITY 26

(1) Some Pitfalls in Assessing Environment and Heredity;
(2) Necessary Technical Foundations in Psychological Genetics;
(3) Heredity in Mental Disorder and Delinquency;
(4) The Inheritance of Physical Constitution and Temperament;
(5) Animal Studies and Human Inheritance;
(6) Summary on Inheritance and Personality.

III. PSYCHODYNAMICS I. THE RISE OF NORMAL PERSONALITY STRUCTURES 45

(1) Subsidiation of Ergic and Metanergic Motives;
(2) Sentiment Structure and the Dynamic Lattice;
(3) Psychodynamic Calculus;
(4) Repression and the Intrapsychic Conflict, of Ego Id, and Superego;
(5) Summary Concerning Dynamic Structure.

IV PSYCHODYNAMICS II. FURTHER ANALYSIS OF BASIC STRUCTURES AND FUNCTIONS 68

(1) The Ergic Structure of Man;
(2) Ergic Maturation and Regression;
(3) The Psychoanalytic Account of Development;
(4) The Integration of Structures and of Functions;
(5) Summary Concerning Structural Relations.

V PSYCHODYNAMICS III. THE PROGRESS OF ADJUSTMENT OR MALADJUSTMENT 89

(1) The First Three (External) Adaptation Adjustment Crossroads;
(2) Innate and Acquired Response Patterns to Hindrance;
(3) The Development of Anxiety and Internal Conflict;
(4) The Fourth (Internal) Crossroad and the δ Sequels Suppression, Sublimation, Repression;
(5) The Fifth Crossroad and the ε Sequels
(6) The Sixth Crossroad and the ζ Sequels or Ego Defences.
(7) Summary Concerning Course of Adaptation-Adjustment.

VI THE ABNORMAL PERSONALITY, NEUROTIC AND PSYCHOTIC 112

(1) Adjustment, Adaptation, and Integration;
(2) Ergic Regression and Personality Regression;
(3) The Formation of Neurotic Symptoms;
(4) Some Modified Forms of Neurotic Behaviour;
(5) The Psychoses;
(6) Summary Concerning Abnormal Personality.

VII THE DESCRIPTION OF PERSONALITY 134

(1) The Indispensable Descriptive State in Science;
(2) The Meaning of Trait and Type;
(3) Correlation Clusters and Factor Analysis;
(4) Some Major Abnormal Personality Patterns;
(5) Summary of Principles of Personality Description.

VIII THE MEASUREMENT OF PERSONALITY 152

(1) Principles of Measurement;
(2) The Measurement of Emotional Integration or Character Stability (Factor C);
(3) Surgency-Desurgency or Hysteria-Dysthymia (Factor F);
(4) Dominance-Submissiveness (Factor E) and Sensitive Emotionality *v.* Hard Poise (Factor I)
(5) Ergic Rigidity, a Possible Second-Order Factor
(6) Summary of Personality Measurement.

IX PERSONALITY AND THE BODY: PSYCHOSOMATICS 167

(1) Methods and Concepts in Body-Mind Relation;
(2) The Psychosomatics of Emotion and the Endocrine System;
(3) The Evidence from Medical and Psychological Pathology;
(4) The Study of Normal Physiological Variations;
(5) Personality and Body Build;
(6) Personality and the Central Nervous System;
(7) Summary.

X PERSONALITY AND THE CULTURAL PATTERN: 185

(1) The Family: Parents as Society;
(2) Growing out of the Family: Sibship and Playgroup;
(3) Personality Against Culture: Delinquency;
(4) The Role of School, Occupation, Recreation;
(5) Personality Integrates Organism and Culture Pattern;
(6) Summary.

XI THE LIFE COURSE OF PERSONALITY 205

(1) Age Changes in Physical and Mental Abilities;
(2) Age Changes in Attitudes, Interests, Sentiments;
(3) The Principal Life Stages. I. Infancy, Childhood, Adolescence;
(4) The Principal Life Stages. II. Maturity, Middle Age, Senility;
(5) The Meaning and Definition of Personality.

PREFACE

THE need for a small standard text on basic principles of personality structure and development has been very apparent to teachers of psychology for some time. There is no lack of good books illustrating specialized or applied aspects of the psychology of personality—such as abnormal psychology, educational psychology, child psychology, mental measurement, vocational guidance, etc.—and there is certainly no lack of more 'popular' books delightfully putting forward ideas about personality and success in life known to every intelligent person. What the subject lacks is a treatment of personality study as pure psychology, concentrating on fundamentals.

My aim, therefore, has been to bring the general problems of personality description and development, normal and abnormal, into a single perspective and to integrate the principal fields of observation in clear cut generalizations. To carry this out in so compact a work, with the very sparing use of illustrations that space permits, and with the need to use technical terms only in a carefully worked-out, dependent sequence, puts as great demands on the intelligence and attentiveness of the reader as on the writer's capacity for careful order and significant condensation. Consequently, the reader should be forewarned that this book is for the intelligent, analytical student, desiring to get to grips with basic laws (rather than to view an easy panorama of stories about personality), and that a second reading will probably bring added understanding.

Although the treatment is in the main that which would agree with a consensus of psychologists' opinions, there are two or three innovations and new viewpoints which the writer feels it necessary to introduce for the clarity and advance of the subject. First, I have attempted here, as in my *General Psychology* to present, in the simplified spatial, geometrical form, the essentials of the *factor analytic approach* to describing and measuring personality. Many psychologists, accepting a traditional estimate of the difficulties of this technique and perhaps unaware of the advances and simplifications made in this generation, avoid the whole subject and try, with some superficial and misleading talk about 'types', to 'get by' on the subject of personality description.

But if the student is really to understand what this new subject of personality measurement is about, and to avoid that later disillusionment in which he realizes that the talk of types, etc., has been an academic smoke-screen, teaching him nothing he did not know before, the essential ideas of correlation and factor analysis must be met right at the beginning. Preliminary teaching experiments have convinced me that by the visual, geometric presentation any student can understand this who can understand graphs—and if simple algebra or geometry is too difficult for him he certainly ought not to be studying so complex a subject as psychology. Chapters VII and VIII are admittedly the most difficult in the book, but the student should not feel that he has to understand all the implications of mental measurement, at a first reading, in order to get along easily in the rest of the book. I have written them so that the necessary minimum can be quickly absorbed, but containing further illumination for the student who can study and discuss them at leisure.

Secondly, I have replaced the vague notion of 'drive', 'need', or 'instinct', used in all sorts of ways by writers of differing viewpoint and carefulness, by the more precise concept of *erg*, which I put forward in 1940 and have developed in various places since. It means substantially what MacDougall meant by his revised concept of 'propensity', but has advantages in the form of simple adjectival and adverbial forms, in the freedom of a technical term from popular misunderstandings, and in putting the investigation of ergs on an operational basis. It is these tangible advantages for discussion and research which have recommended it to psychologists, especially to those interested in putting dynamic psychology on a firmer experimental foundation, with meaningful measurement of the strength of ergs and precise factorial delimitation of various ergic patterns.

Lastly, I have introduced a system of adaptation-adjustment analysis which integrates psycho-analytic and other clinical and experimental studies of dynamic process in the concept of six 'dynamic crossroads'. Our observations on the development of dynamic structures in personality necessarily remain today still largely at a clinical level, but they are certain enough to permit us to go forward to a systematization of this kind. The framework now offered not only contributes to the rapid analysis of any given situation of conflict into its essentials, but helps to indicate fruitful areas of discussion and experiment on dynamic principles.

Despite the demands of condensation, I have not tried to skate with complacency over the thin ice of controversial issues, but have indicated briefly—sometimes perhaps with rather sharp words—the misconceptions which I think reside there. And since psychology is a science which is peculiarly liable to distortion by pseudo-scientific, political and religious intrusions, I have also briefly indicated to the student that he must understand the manner in which such sociological movements and fashions intrude and even posture as scientific systems.

Since we have long known—but rarely put in practice—the rule that learning by doing is the most effective learning, I hope that the serious student will avail himself of the summaries at the ends of chapters—by pausing and attempting to write out his own summary before reading that which I have given. The bibliographies are in the main also for the serious student, with time to make a thorough study of the field, for they contain the more 'classical' works and—except for the few that are plainly intended as substantiating sources of data for the text—are intended to give glimpses as far into the deeper issues of the subject as psychology has yet advanced.

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CHAPTER I

PROBLEMS OF PERSONALITY STUDY

1. THE IMPORTANCE OF PERSONALITY STUDY

IT is a truism that most human affairs—political, social, commercial, cultural, domestic—hinge on issues of personality. A political system such as democracy, making high demands on good judgment and forbearance, will succeed with one group of personalities, but with another will quickly degenerate into mobocracy' or anarchy or become infiltrated by a system applying more rigid control from above. A commercial venture given up as hopeless by one personality, when taken up by another, will sometimes begin mysteriously to succeed and flourish. Cultural creativity, again, in the specific sense of artistic, musical, literary and scientific production is a living extension of personality—of the personality indeed of the fortunate few whom we call men of genius, and is clearly stamped with the inescapable uniqueness of those personalities. Finally, in the life of the family, we have a most important creation—the home—which is woven of the very essence and texture of personalities and in this vessel the molten ingredients of personality flow together for the formation of all new individualities.

Since the life and the happiness of each one of us depends so closely on harmonious personality development in himself and in his neighbours it is surprising that mankind does not spend at least as much time and effort in seeking to understand personality growth as in understanding automobile construction or the fashioning of atom bombs. The reasons for the failure are many. First, the fruits of research on personality, whether in the finer development of individual lives or in the designing of more stable societies, are relatively remote, whereas unpreparedness for war, through neglect of the physical sciences, brings a threat so immediate that anyone can see it. Secondly, politicians and others who have dealt with personalities for a life time, achieving considerable shrewdness in the process, cannot conceive that science could bring any knowledge about personality that they do not already possess. The subject matter of psychology, unlike that of, say, chemistry or botany, is everybody's business, and the 'practical psychologist' who has learned in the hard school of experience may be excused for doubting whether the theoretical discussions of scientific men can produce any more fundamental grasp of the subject.

Finally there are objectors to psychology—the most expressive of them being found among die-hard Oxford philosophers—who deny that it is possible or desirable to make personality the subject of scientific analysis. They fear that the literary and humanistic way of appreciating personality, in poetry and drama, will be irretrievably lost if scientific training introduces an analytic objectivity and a coldly penetrating calculus. This is an unjustified fear, for a well-educated man can adjust his attitudes according to his purposes—scientific or aesthetic—at the time, and it has yet to be proved that a professor of anatomy enjoys Greek sculpture less than an uneducated yokel.

The *wish* that the human mind should be untouched by science is father to the thought that it *cannot* be treated scientifically. It is argued that measurement, the necessary basis of science, is impossible in mental life. This argument is philosophically false, though the travesties of mental measurement that have appeared, especially in the rank growth of applied psychology in America, sometimes make one wish that the unintelligent had never been encouraged to believe mental measurement possible. True measurement—of definite dimensions of behaviour in terms of definite units—is possible for human behaviour on the same conditions as for chemistry or physics, as we can see more convincingly in Chapter VIII. Already the results of such measurement have led to laws and principles beyond the unaided vision of that intuitive psychology which arises from the everyday experience of the man in the street.

The above obstacles, however, have undoubtedly slowed the progress of personality study. What the reader can be offered today is a rather meagre collection of facts and principles which integrate only in one or two special zones and leave large tracts as blank as a fifteenth-century map of the world. Magnificent vistas akin to those of physics, astronomy or chemistry do not yet exist in this science to charm the eye of the visitor. A simplified presentation, in circumstances where methods are still in debate, and where half-digested facts alternate with speculation, is not so easy to present satisfactorily, and the reader should be warned in advance that he will have to face more obscurities and difficulties with his own judgment than would be required of him in an introduction to more settled sciences. Most of the difficulties in the present exposition of the psychology of personality arise from the great discrepancy between the magnitude of the questions which eager curiosity and practical urgency demand and the uneven certainty of the answers which the meagre endowment of psychological science permits us to make today.

2. METHODS AND SOURCES OF KNOWLEDGE

Science is characterized by controlled experiment and by exact measurement. When Pasteur wanted to prove the hypothesis which we now call the germ theory of disease he exposed some animals to germs while keeping others, matched in circumstances, under controlled, sterile conditions and compared the consequences. When Newton was formulating the law of gravity he was not satisfied only with some qualitative statement of the attraction between bodies. He set out instead to measure the weight of the earth, applying extremely fine measuring devices.

As psychology also claims to come of age as a science it has to demonstrate that it can likewise experiment and measure. The problem of *measuring* personality we have deferred until Chapter VIII, because it involves difficult theoretical issues—far more difficult than those involved in measuring matter and machines—which the student cannot readily face at the outset.

This postponement means that the first part of the book has to depend on a less rigorous scientific foundation—that of general observation and clinical analysis. The plan of exposition therein follows the actual order of historical development of psychology. For in fact it was qualitative observation, notably by psychiatrists in clinics and mental hospitals, which led to the first rough generalizations, e.g. about the classification of temperaments or the dynamics of conflict, as in psycho-analysis, which have so far formed the chief substance of personality theory. The day of more precisely demonstrated and universally accepted psychological laws, based on exact measurement, is only now dawning, and what is written in this transition period must necessarily have some of the uncertain perspectives of changing illumination.

If science also requires controlled experiment it might seem that psychology can never become wholly scientific because there are certain experiments on personality which neither conscience nor the law will permit us to perform on human beings. There are certain heated debates, for example, on the role which heredity plays in shaping behaviour, e.g. mating behaviour, speech formation, intelligence development, which might be finally settled if some scientist could bring up a child alone on a desert island; but none has been so hardy as to try it.

Psychologists *do* carry out experiments, but in the first part of this century they were mainly experiments which deliberately omitted personality, and were in consequence about as sensible as the drama of Hamlet played without the prince. These experiments were mainly concerned with measuring the acuity of the sense organs, with laws of perceiving form and with the study of learning through conditioning or the memorizing of meaningless material. They did not get much beyond the obvious, and they led all too easily to merely physiological laws, for when emotion and meaning and the total personality is omitted the rest is apt to shrink to the merely organic. The sedulous aping of the physical sciences, in the letter and not the spirit, by the use of impressive arrays of brass instruments, thus missed the great issues of psychology as inevitably as a meteorologist would miss the great issues of meteorology if he refused to make any observations out of doors. Even the little laws that the 'experimental psychologists' made about the special senses, or memorizing or conditioning of reflexes, broke down as soon as the total personality entered. Under the influence of emotion the sensory powers would swing far beyond their plotted orbits; for matters memorized through one repetition would be remembered better and longer than less significant ones repeated a hundred times, and a conditioned reflex would appear or vanish with changing appetites and goals.

3. STATISTICS ON LIFE RECORD OFTEN BETTER THAN EXPERIMENTATION

Is the only solution then to be a far more 'significant' kind of experiment involving the whole personality? One experimenter on the effects of emotional conditions sent his subjects telegrams telling of the sudden death of their nearest and dearest. He obtained results far different from those of the ordinary 'laboratory' experiment; but he also lost his subjects and might have lost his job or even his life! Something can be done to make psychological experiment more real and more directly relevant to personality, even when one keeps to more humane and legitimate limits than these. But this experimental approach as understood in the older sciences can never be used directly on man except in a very restricted way.

One escape from the resulting impasse is to experiment on animals. Consequently as many experiments have now been done on the behaviour of the rat and ape for psychological research as ever were done on their physiology for medical research. But the gap between human and rat mental structure is greater than that between human and rat physiology, so once again effective, definitive research is somewhat balked.

Psychological research therefore has to turn for its major results to an entirely different approach, namely, that of *eliminating statistically what it cannot control experimentally. We* cannot make the most crucial and potent experiments on personality; but *nature* does so every day. We cannot, for example, set up experiments in which the effect is studied of permanently removing the parents of five-year-old children to see what changes of personality ensue. But in the course of natural events a certain small percentage of five-year-old children become orphaned and these can be studied and compared with equivalent cases who have not been orphaned. We cannot remove parts of the brain to study the dependence of personality upon brain functioning; but the accidents of modern life, particularly of high speed transportation, produce every year a great variety of brain injuries, which can be carefully studied.

In all these natural events there exist irrelevant influences which we should plan to eliminate if we designed an experiment. For example, in studying the effect of being made an orphan we should eliminate the simultaneous occurrence of illness or change of school, etc., whereas in the cases which occur naturally such additional happenings modify the reaction in some circumstances. Consequently we cannot deal with a single case, as in an experiment, but have to take a large number of cases and ask whether the change in the *average* is significant, by certain statistical tests.

Statistical methods are put to work even more potently in the use of correlation coefficients and factor analysis, to which we shall allude particularly in the later chapters. By the mathematical device of *the correlation coefficient*, invented only half a century ago by Galton, Pearson and Bravais, we can discern trends of 'co-variance' in data that would not be discernible to clinical observation alone and thus trace underlying causes to their source. Factor analysis is a device to enable us similarly to pick out 'wholes' or 'unities' when we do not know beforehand what unities exist to be observed or measured. For example, we may be vaguely aware that a bunch of personality manifestations exist which we call extraversion—introversion, i.e. people who are more 'extravert' show not only greater sociability, but also greater impulsiveness, talkativeness and interest in external details than do introverts. But the exact delimitation of the bunch of qualities concerned in this pattern can only be finally achieved by the statistical device of factor analysis. Because this method has been so essential and important in picking out the patterns required to describe and measure personality, we shall encounter it, despite its intricacy, in the later chapters on personality description.

4. WHAT DO WE MEAN BY PERSONALITY?

So much for methods and scientific standards as they apply to the psychological investigation of personality. Now what is—more specifically—the matter we are investigating? Naturally, personality cannot be fully defined before we investigate it, indeed we may find ourselves only a little advanced toward that goal *after* our investigation. 'Definition in the first chapter' may be the obsession of pedants; but it is often a travesty of the scientific methods we have just discussed to *begin* with a definition.

It suffices if we define the *field of data* within which we shall seek laws. Some writers have defined personality as "the sum total of the psychological characters of the individual" and while this is not acceptable as a definition, because of its loose use of 'sum', it suffices to make that *delimitation of the field of data* which we require. *All* the behaviour of the individual falls within our study, but his behaviour as an individual is more important than the part-reactions which we call reflexes and the various internal behaviour responses, e.g. how he digests his food, which belong more especially to the field of physiology.

Since so much interest has fallen recently on the behaviour seen in deficiencies and maladjustments it may be necessary to point out that our study will place no undue emphasis on abnormal psychology. Abnormal behaviour is a rather artificially—legally and socially—cut-off portion of the total behaviour studied under personality, and it is of particular value to study it, as such, only when it presents an especially advantageous avenue to the understanding of personality.

Still less can personality study be concerned with value judgments. A psychologist may speak of bad habits or an evil temperament, in so far as he can prove that they hamper the individual's attainment of a certain goal. But his statement that this goal, e.g. a personality without fear, a personality suitable for democracy or for a rationalist society, is the desirable goal of living, has only the validity of common social approval or of his own guess as a citizen or a philosopher. We must guard against assuming that a specialist in the working of human nature is necessarily also a specialist in ethics or politics. For it is an unfortunate fact that the general public assumes this transfer of eminence and will quickly demand of a man eminent in physics, like Einstein, that he deliver authoritative statements on economics or social organization. Human nature being what it is, the psychologist, who, among scientists, is most near to ethical issues, appears often tempted to statements on what constitutes the good personality or the good society. If he is a good psychologist he will say cautiously that, as a scientist, distinct from a citizen, he can only tell what is a good personality for a given occupation or form of society. He must admit that he is only as wise or ignorant as the next man in the street concerning what religious, ethical, artistic or other *values* are better than others.

One needs to guard also against confusions due to special limited uses of the term personality in certain groups. Certain religious philosophies, such as the scholastics, for example, have used personality only to apply to that aspect of the human organism which is unique, conscious, individualistic and possessed of immortality. Very remote from this is a current slang use, exemplified in a popular song and some popular books on doing well in business, which equates personality with whatever is loud, aggressive or exhibitionistic, i.e. with that which is not reserved or cultivated in personality. Admittedly the origin of the word personality, in the Latin word *persona*, for an actor's mask, offers some support for this use, as it does also for the sociologist's definition of personality as 'social stimulus value', i.e. that which is inferred from the reaction of other people to it, in so far as they understand it—or, in other words, 'reputation'. But this social reaction is in most ways a small and unimportant aspect of the totality of the organism's behaviour and, even so, is not viewed directly in these concepts but evaluated only from a social reflection.

5. THE PRELIMINARY DESCRIPTION OF PERSONALITY

The initial definition of personality put forward by the writer, in addition to the delimitation of the data areas, will be a *denotative* one, as follows: *The personality of an individual is that which enables us to predict what he will do in a given situation.* Mathematically expressed it is 'P' in the following equation,

$$R=f\,(P.S.)$$

where S is a definition of the situation (or stimulus) and R is a description of the behaviour (or reaction). What P connotes, in terms of all its elements, is the object of our investigation of personality.

However, common experience and the accumulated good sense of centuries, permits us even at the outset to be a little more specific about the description of these elements and aspects of personality. Thus experience has, for example, led to agreement on those divisions into which personality traits may be sorted: (1) dynamic traits, which have to do with motivation, action and purpose, (2) temperament traits, which deal with pervasive, unchanging *qualities* and tempos in our actions, and (3) ability or 'cognitive' traits which concern *how well* a person can do anything. These demand fuller illustration.

Dynamic or 'driving' traits include acquired interests, such as attitudes, sentiments and complexes, as well as the presumably innate drives which used to be called 'instincts' or propensities and which we shall call ergs. Under these subdivisions of dynamic traits, the student may like to classify, as an exercise, such trait forms as are described by the terms desire, need, habit, inhibition, prejudice, will, disposition. A person's disposition, for example, is determined by which innate drives predominate, so that where the sex drive predominates we speak of an 'amorous' disposition, where the fear erg is always active, a 'timid' disposition, and so on.

The term 'character' has long been specialized (in English, but not so clearly in German) to mean that group of dynamic traits (sentiments and attitudes) united in a structure which controls unorganized impulses in the interest of ethical standards and other more remote goals of the self. The will is character in action. The relation of character to personality is thus not quite that of the division of dynamic traits to the total personality, but it is at least that of the most important structure among dynamic traits.

Abilities include such powers as general intelligence, verbal ability, spatial ability, musical aptitude, various powers of memory, and many acquired skills and capacities. We can classify them into perceptual and effector abilities and also, as a cross classification, into ability to acquire and ability to retain, in each of the above fields.

The definition of temperament traits has caused most difficulty to psychologists. Some wish to define them as those traits which are constitutional, while McDougall would have defined them as the aspects of behaviour determined by physiological conditions. But both must be rejected, for many abilities, notably general intelligence, are largely innate and many dynamic traits, e.g. the hunger drive and the sex drive, can be shown to be partly determined by the physiological state of the organism. It is better to define dynamic traits as those in which the person's performance is quickly affected by change in an incentive; abilities as those in which it changes with change in difficulties, and temperament traits as those in which the performance is independent of stimulus conditions. For example, a temperamentally excitable person will show this excitability equally in response to a fear, a sex or a pugnacity stimulus. Among temperament traits we shall then include such items as high-strungness; sensitivity to fatigue, drugs, etc.; tolerance of monotony; speed, acceleration and decline of performance; level of energy and so on.

The real point of difficulty, at which scientific method has to come to the rescue of common sense, is reached when we want to measure one of these traits, in order to say whether Jones is more or less temperamentally high-strung than Smith, or whether the intelligence of Johnny Brown has improved since he had his adenoids removed. *Then* we find it necessary to discover first if there are two or three different *kinds* of high-strungness and whether intelligence is a unitary trait and if so with what boundaries. Where gross, salient, abnormal traits are concerned this can be answered by simple clinical observation and psychiatrists have thus established certain 'syndromes', e.g. mania, anxiety hysteria and so on, in which a collection of behaviour manifestations are known to 'go together as a unity'. How the structure of *normal*, unobtrusive traits can be similarly established, but by necessarily more subtle methods, we shall describe in Chapters VII and VIII. At the beginning it suffices to speak of traits with the degree of precision existing in general, educated conversation and with the above understood division into dynamic temperamental and ability traits.

6. THE MANNER OF APPROACH TO PERSONALITY STUDY

That the student of psychology meets difficulties of a more subtle and vexing kind than those of many other scientific studies is well known and justifies time for some brief suggestions as to how the reader may best orient himself to this book. Psychology is bounded on one frontier by biology and physiology, on another by the social sciences and another by philosophy. This variety of neighbours and breadth of domain is itself a major cause of difficulty and misunderstanding. Personality study must be founded on good biology, but it must not suppose that a physiological explanation of a behaviour pattern is any 'deeper' or more to be preferred than one which traces it to that 'great leviathan' the social organism.

The philosophical frontier causes difficulty because there is a constant tendency to flee across the border, equally on the part of those who genuinely pursue some abstract issue (but pursue it to unprofitable remoteness) and those who simply prefer verbal activity to the arduous reasoning required by experiment! Again, the problem of consciousness and the relation of consciousness to material events is one met by no other science, and it is possible to gyrate in very large circles indeed in pursuing the issue. At the present stage of our experimental information about nerve action the issue is unprofitable and is best omitted from psychology. To say that we are all behaviourists nowadays, concerned to form laws purely in terms of observable behaviour, is, however, very different from saying that psychologists are mostly 'reflexologists'. Behaviourism includes dynamic psychology, which is far wider than the reflex concept, and may or may not be couched in mechanistic terms.

Another constant difficulty with psychology, in which, however, it is no worse than mathematics or advanced physics—is that it deals very much with abstractions, fine generalizations and complex concepts. The student has to be able to perceive the exact nature of some generalizations about diverse instances of literal behaviour or else he is lost. For example, a trait is not behaviour: it is an abstract structure inferred from many instances of behaviour. It is something in the subject's 'mind' which functions on those occasions when he acts. It is not to be mistaken for a neural structure in the brain. With such it may be associated, but it is not the same. Again, I have heard students (and even psychiatrists!) remark that *all* traits must be dynamic traits, because no behaviour occurs without a motive and a drive. This last is true; but traits are abstractions from actual behaviour. We make our inference about ability traits from *how well* the behaviour reaches the goal at which it aims, and about the dynamic traits involved by asking *what* particular goal is intended, and so on, as sketched above. Patience to get such issues clear is worth while if one is aiming at a real grasp of personality psychology.

Yet another difficulty in psychology is that because of its ready contacts with social, ethical and religious attitudes, as well as with the individual's personal problems he may be unwilling to follow reasoning wherever it may lead him. The present approach is less likely than some to fall foul of this difficulty because it treats personality study as a scientific problem and an intellectual exercise, rather than as a course in 'self-therapy' or as an applied psychology of social problems or as a directive for 'handling people' in business. It will help greatly, however, if the student will make the converse connections and bring his own personal experience with life and people constantly to bear on the principles discussed here. While on the subject of getting the most from reading one may add that reading is not enough. Wherever possible the serious student should do something more active, such as setting himself applied problems or writing summarizing notes at the end of each chapter. These could be compared with the given summaries, which, it is hoped, will be an aid to clear formulation and learning even if this active comparison is not possible.

There remains one question on the philosophical frontier, lack of reference to which may create the difficulty occasioned by any persistent question mark at the back of the reader's mind. It is this: in claiming to establish laws based on a belief in cause and effect in mental life, do we imply that free will does not exist? The psychologist, like any other scientist, proceeds on the assumption of dependable causality, i.e. of 'determinism', until it is disproved. It is conceivable that up to a point exact laws hold, and that statistical probability laws hold even beyond that, but that the absolutely unpredictable still lurks somewhere in each human mind, by the very nature of mind.

At present our predictive equations in regard to personality, or to memorizing and learning, willing and deciding, have certainly not reached such a pitch of dependability that any psychologist can claim there is no room for the unpredictable free will! As scientists we have to keep an open mind concerning what we shall find about mechanistic operation as we penetrate further. And it may be that we shall find a necessity for unforeseen ways of thinking and conceiving that will make both 'determinism' and 'free will' equally correct in their proper contexts.

CHAPTER II

INHERITED, CONSTITUTIONAL INFLUENCES IN PERSONALITY

1. SOME PITFALLS IN ASSESSING ENVIRONMENT AND HEREDITY

If we are to begin at the beginning in the study of personality it is necessary to ask to what extent the average personality is determined at birth. Obviously this involves more than asking how much of the final personality is overtly *manifest* at birth; for heredity continues to operate long after the moment of entry into the world. The interaction of heredity with environment requires rather that we ask in what way and to what extent inherited nervous and psychological conditions set *limits* to the influence both of education and of 'the slings and arrows of outrageous fortune' which express the debit side of environment.

To what extent, for example, could a person of violent temper have developed differently under a more therapeutic environment? And is the variability of intelligence which we encounter in our present population a result largely of hereditary differences or of differences in social condition? And how far are the extreme and tragic manifestations of personality that we see in insanity inevitable consequences of environmental upbringing or pre-determined expressions of heredity? Logically regarded, it would naturally be a waste of time to try to investigate environmental effects on personality until we have set aside that fraction of individual difference which is due to heredity.

Knowledge of psychological genetics[1] can help us enormously in practical problems as well as in theoretical issues in personality. If, for example, a certain trait is largely inherited, to bring strong pressure on an individual to change that trait is not only

[1] The term 'genetic psychology' cannot safely be used here, since it has long been pre-empted for 'developmental psychology', i.e. the genesis of personality by *all* influences.

a sheer waste of energy but gratuitous cruelty. Before it was realized that general mental capacity is largely inborn, many idealistic teachers became disillusioned and discouraged in attempts to train mental defectives into normal individuals. At the same time, in driving the individuals of small mental capacity to aim at abstract studies beyond their constitutional powers they produced warped personalities, beset with an irremediable sense of inferiority, only vaguely aware of the source of their frustration and harbouring strong anti-social tendencies. The simple view that personality can be shaped to any form by environmental pressure alone also led to neglect of remedies where society most needed them, namely, in legislation for constructive eugenics directed to producing individuals better adapted from the beginning to the demands of life. On the other hand, one can point also to the value of genetic research when it shows definitely that heredity has only a small role; for then we know that we can well spend time searching for powerful environmental causes of individual differences.

Dispute on the roles of heredity and environment has unfortunately had to cope not only with the intricacies inherent in the subject but also with emotional distortions from political motives.The supporters of the French Revolution, being opposed to an hereditary aristocracy, perhaps did well to belittle the importance of human heredity. Nowadays just as many arguments could be adduced from heredity for one party as another, and the lingering confusion of political and scientific extremists becomes as pointless as it is scientifically obnoxious. In this connection one should note that the more one raises and equalizes the general inheritance the greater scope one makes for differences to arise from environment. Conversely, the more one succeeds in getting the same environment for all the more will individual differences due to heredity become prominent.

The day has gone when psychologists would say 'this behaviour is hereditary and that is wholly environmental'.[1] No longer are we in thrall either to the illusion of a mind plastic to every touch of education or to the nightmare of an inexorable psychological predestination. Every characteristic of the individual is partly hereditary and partly environmental in its determination. The problem is to say *how much* is due to environment and how much to heredity. The pitfalls in discussion are rendered greater also by the existence of four similar but not identical terms—inherited, inborn, congenital and constitutional. The first describes all that comes from, and can be related to, near or remote ancestors. Since mutations can occur, i.e. some change in the hereditary endowment between parent and child, most noticeable in what are called 'sports', *some* individuals will have as inborn characters *more* than they actually inherit. Inborn thus connotes somewhat more than inherited. Congenital connotes more than inborn; for it covers the changes *in utero* which are really environmental but which occur before birth. Mongolian imbecility is congenital but not inborn. On the other hand, one must guard against the elementary error that all which is inborn appears at birth. Some

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[1] Of course, if we *abstract* a trait from behaviour, as we do in factorizing in certain conditions, it is possible to say *this* source trait is wholly hereditary (constitutional trait) and that is wholly environmental (environmental mould traits). But any given behaviour 'trait element' has variance drawn from both.

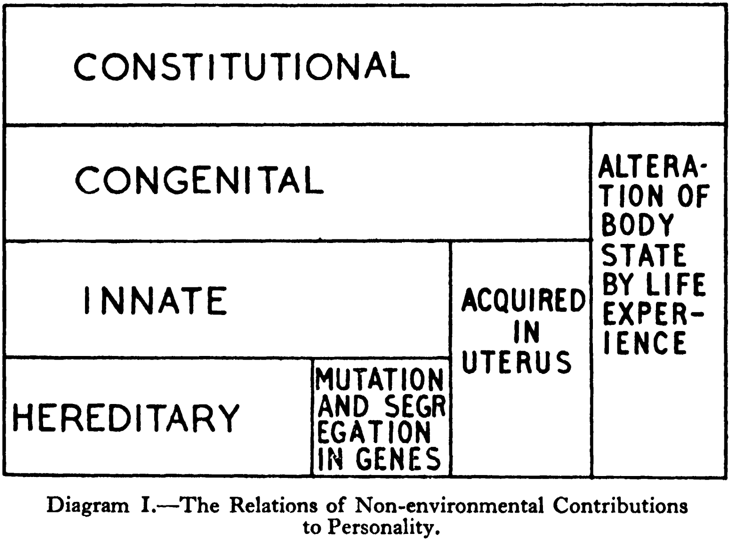
CONSTITUTIONAL
CONGENITAL
ALTERATION OF BODY STATE BY LIFE EXPERIENCE
INNATE
ACQUIRED IN UTERUS
HEREDITARY
MUTATION AND SEGREGATION IN GENES

Diagram I.—The Relations of Non-environmental Contributions to Personality.

inborn characters appear like the sex drive in early life, others, like Huntingdon's chorea, not until middle age. Constitutional is a vague term, but is used by most as the broadest term of all, covering all reactivities which are so 'set' through age (and so dependent on the organismic qualities affected only by physical influences and then but slowly) that for practical purposes they are not susceptible to psychological environmental changes.

2. NECESSARY TECHNICAL FOUNDATIONS IN PSYCHOLOGICAL GENETICS

What we require to know about personality traits, it has just been suggested, is a *nature-nurture ratio*, expressing the relative efficacy of heredity and environment. The precise calculation of this index requires an understanding of *variance*. When we want to express the 'scatter' of a population of measurements we generally do so by means of the standard deviation:[1]— $\sigma = \frac{\sqrt{\Sigma d^2}}{N}$.

The variance—s—is simply the square of σ, i.e. $\frac{\Sigma d^2}{N}$. s, like σ, is greater when the scatter is greater.

The nature-nurture ratio is found with respect to any trait first by asking what percentages of the observed variance are due respectively to heredity and environment and then by dividing one by the other. Obviously the percentages will add up to 100, since, by definition, an influence must fall under one or the other. When we know the correlation of the observed trait with say, hereditary influences, the contribution of these influences to the variance is obtained by a simple rule, namely by *squaring* the correlation coefficient. Thus let us suppose we have tested the intelligence of several hundred men who were brought up from birth away from their families. Let us suppose also that we have tested their parents and grandparents (and, ideally, more remote ancestors, too) and computed an average 'mid-ancestor score' from these for each man. If now the correlation between the intelligence of these men and their mid-ancestors is 0·9 we should conclude that 81 per cent of the variance in general intelligence is due to heredity.

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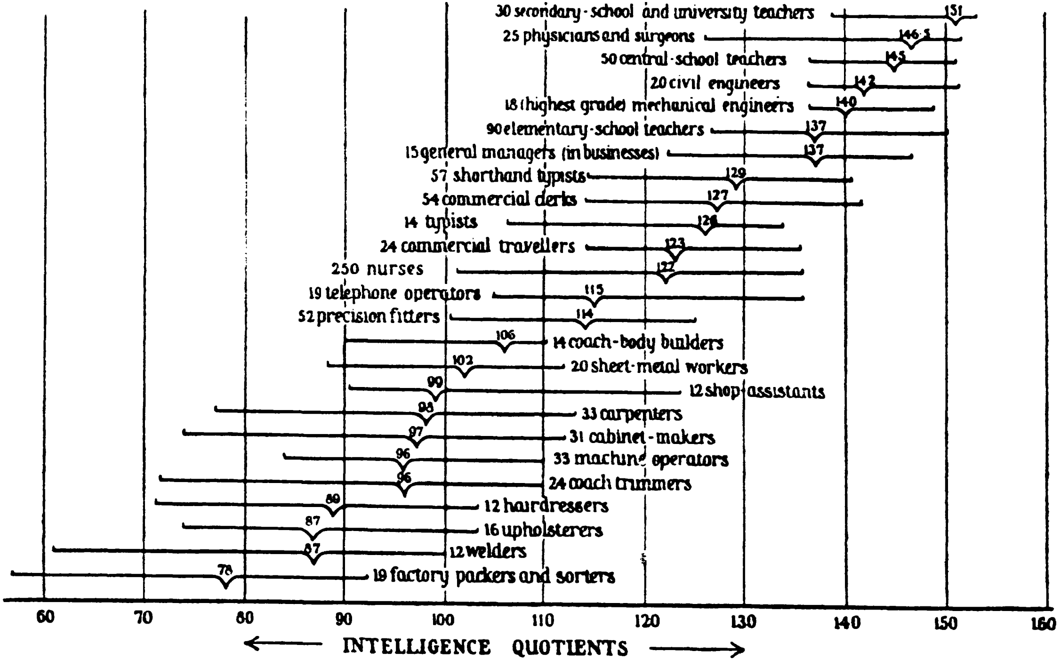
[1] Where d equals the deviation of each case from the mean, N is the number of cases and Σ means the sum of all cases.

This is about the generally accepted figure for intelligence. It follows that some 19 per cent of the variance is due to environmental differences, and that the nature-nurture ratio is $\frac{81}{19}$ or 4·26. Another way of regarding variance contribution is illustrated by saying in this case that if all men were brought up under exactly the same environmental conditions we should expect the present variance in intelligence test scores to decline by 19 per cent. On the other hand, if environmental differences were to persist but all men were to have the same heredity we should expect the variance to decline by 81 per cent, i.e. to only 19 per cent of what it now is. If a democracy *really* consisted in all men being born equal (rather than equal in right to opportunity) it would be attained more readily eugenically than by environmental reforms.

There is nothing *absolute* about the nature-nurture ratio for a given trait. It depends on the racial group studied and the range of environmental, inter-familial difference at the time. As stated above, if we take a very mixed racial group and smooth out environmental differences the ratio will rise somewhat in favour of heredity, while the converse will hold when social conditions are such as to produce big environmental differences. Not many nature-nurture ratios have been computed, but those which have range all the way from giving most of the weight to heredity, as intelligence, personal tempo and colour vision, to others which give most weight to environment, as in arithmetical skill, various dexterities in games and spelling. It may be necessary to remind the student here that a skill which is *wholly acquired* can yet be determined in its level partly by heredity. Whether you learn English or French as your native tongue depends wholly on environment; the level of skill you reach in either of these is partly influenced by hereditary capacity. It is possible to show a mentally defective command of language in many different languages.

An alternative approach to heredity and one which must supplement the nature-nurture formulation if we are to have an illuminating understanding of problems is that which looks for inheritance by genes. We cannot spend more time, since our main interest is in psychology, on the concepts and methods of heredity study as such, and we shall assume that the student knows about the unitary heritable influences called genes and the Mendelian laws on the interaction of dominants and recessives. Here the psychologist looks for a set of personality manifestations which are transmitted in a family as a single set of cohering qualities, though the pattern may sometimes be smudged or faded through environmental influence. This set will presumably be due to a single gene in the germ plasm. An individual will either have it as a whole, no matter how modified by environment, or not at all. It may skip a generation, if it is a recessive or reappear in one or more members of each generation with infallible regularity if it is a dominant.

The nature-nurture ratio is only the quantitative approach to the study of environmental modification of Mendelian unit action. An alternative quantitative approach is used by medical men when they talk of a 'manifestation rate' for a certain gene. For example, when we know the mechanism for a certain pathological gene—say, that which induces the pattern of manic-depressive disorder or that involved in duodenal ulcer—we can work out the percentage of children (from a hundred affected parents) who should carry the gene. Of those who carry the gene perhaps only 60 per cent in the course of their lives show the disorder. This is called the manifestation rate. Transformation from the arithmetic of nature-nurture ratio into that of manifestation rate is not simple because most of the source traits we measure in psychology are not due to a single gene. Like general intelligence they are not 'all-or-nothing' in character but vary continuously through a normal distribution (*see* Diagram II) and we can only assume that intelligence, like stature, varies by many small steps, each increment being due to a single gene. The-step like resultant of multi-gene action is then smoothed into a curve by environmental action or hidden from our measuring instruments by the coarseness of their vision. As we shall see below, it is mainly the dramatic and abnormal traits, which readily excite attention and comment



INTELLIGENCE LEVELS IN VARIOUS OCCUPATIONS

The central figure on each line indicates the average I.Q. for the sample taken. The length of the line subtends the scatter of I.Q. of the middle 50 per cent. in that occupation.

Diagram II.
From *Your Mind and Mine*, by R. B. Cattell.

by their sharp departure from the normal distribution, which get remembered over generations and so become recorded as the first examples of Mendelian inheritance. These we shall study first, because their exaggerated manifestation makes them the simplest to follow.

3. HEREDITY IN MENTAL DISORDER AND DELINQUENCY

That heredity plays a decided part in psychoses (varieties of insanity) has long been known. At present it is assumed that the role in psycho-neuroses is decidedly less.

Schizophrenia, the most common of the psychoses (and described in Chapter VI), seems to be more environmentally provoked than some of the other functional insanities. Nevertheless the hereditary influence is appreciable, as is shown by the higher rate of schizophrenia (dementia praecox) among the relatives of hospitalized schizophrenics, even though they have not lived together, and by the higher rate of schizophrenia among people with a narrow body build and a tubercular 'diathesis'. Yet in at least some 20 per cent in children of families where *both* parents are schizophrenic no such abnormality ensues, while many instances are on record (though they are a minority) in which one twin is schizophrenic and not the other.

The next most important functional insanity—manic-depressive disorder (*see* Chapter VI)—shows, on the other hand, a more decided hereditary determination, as Lewis's London survey figures show.

	Parents Affected by Manic-Depressive Insanity	
	One	*Both*
Percentage of children affected ..	33	67
Percentage not definitely abnormal but showing definite mood disorders	17	33
Percentage unaffected	50	0

There seems to be some tendency for manic-depressive disorder to be associated with higher intelligence and also with upper social status, so that there are eminent men in many fields e.g. Robert Mayer in physics, William James in psychology, through whose families the thread of this disorder can be traced.

In regard to crime and constitution at least two generations of students have been taught to scoff politely at the exaggerated views of the old alienist Lombroso that 'crime can be inherited'. Yet recent results show that crime, like mental disorder, can have a surprising degree of hereditary determination. It is surprising because what is criminal is a relative matter, often relative even to a particular political code, so that it is hard to conceive what forms of temperamental instability, stupidity or inordinate appetite could lead to criminal behaviour with uniform certainty in different cultures.

By the use of the type descriptions 'moral imbecile' and 'psychopath' the psychiatrists implied that an hereditary relation could be found. But it remained for Lange (5) and those who have since checked up on his work to show the relation precisely. These researchers combed the gaols seeking criminals with twin brothers. They found that when the criminal had an identical twin he was also in prison in about 70 per cent of cases, whereas fraternal twins were only in prison in about 35 per cent of cases.

Since contrasting identicals with fraternals is a useful and common device in investigating heredity we shall pause briefly to describe it. Identical twins spring from a single fertilized ovum, have the same gene pattern, are therefore of the same sex and generally physically indistinguishable. Fraternal twins may be of different sex, spring from two distinct fertilized ova and are consequently no more alike than brothers and sisters usually are. Now since both fraternal and identical twin pairs enjoy the same family, social class and age environment the differences between them must spring initially from their difference in hereditary resemblance. If fraternal twins, in spite of their greater difference in heredity, are no more unlike in a certain trait than are identicals we can conclude that heredity has little influence on the trait in question.

In the liability to criminal behaviour identical twins resemble each other about twice as much as do fraternals, so we must conclude that in some way heredity predisposes. Such studies are socially but not individually definite in implication, for they do not show through what personality trait or traits the social phenomenon is realized. From Burt's observations (Chapter X (3)) on the inheritance of traits in his delinquent families it is certain, however, that high emotional instability (what is called Factor C, in Chapter VIII) and general intelligence (Factor B) are two source traits which are at once considerably inherited and highly causative in crime, so that they may provide most of the mechanism behind Lange's observations.

Among the neuroses definite but not great hereditary proneness has been demonstrated, most clearly in obsessional and anxiety neuroses and also in stuttering and enuresis. Hirsch found 40 per cent of the fathers of bed-wetting boys were themselves enuretic beyond the age of two, while only 20 per cent were so in fathers of a random group of non-affected children.

However, in the whole realm of nervous disorder and personality disintegration the most clear-cut inheritance occurs with a few comparatively rare disorders. Huntington's chorea, a degenerative palsy of middle age, acts as a simple Mendelian dominant, with practically 100 per cent manifestation rate, while myoclonic epilepsy acts predictably as a recessive.

4. THE INHERITANCE OF PHYSICAL CONSTITUTION AND TEMPERAMENT

Since the inheritance of physical characters can be comparatively easily established, one method of establishing inheritance of mental traits is by trying to tag them to physical traits. This takes the form of seeking temperamental associates of racial physical characters and of various indices of body build.

The former approach runs into the difficulty that a racial physical pattern is itself due to a whole collection of genes, and we may not be sure which one in the cluster is associated with the mental trait in question. It is, however, reasonable to expect that marked inheritable physical differences will be associated with temperamental differences among races of men, just as occurs among different breeds of the same species of animals. These differences, nevertheless, are still too inseparable from culture differences due to other causes for science to be able to say anything very definite about their real nature, except in a few instances such as that described below.

Meanwhile isolated aspects of physique have been tied up with mental characters by sharp-eyed clinicians. The reiterated clinical suspicion that manic-depressives or cyclothymes (*see* Chapters VIII and IX) tend to be rounded in features and large of girth and that schizothymes or schizophrenics tend to be lean, angular and long and narrow in body was first substantiated by Kretschmer (Chapter I (5)). Both Kretschmer and his American follower, Sheldon (10), have actually contrasted three types of body-build—the endomorphic (Kretschmer's pyknic) soft featured and round bodied as referred to above, the mesormorphic (Kretschmer's athletic), heavier limbed, rugged and muscular; and the ectomorphic (Kretschmer's asthenic) thin, lean, rather puny.

The types representing these three components are shown, with some exaggeration, in Diagram III. Sheldon's concept of the types includes other features than bodily dimensions alone, namely, texture of musculature, distribution of hair, wrinkling of skin, etc.

Corresponding to these three clusters of physical characteristics there are, according to Sheldon, three correlation clusters, or 'surface traits' among temperament characteristics: viscerotonia (corresponding to endomorphy) in which the traits sociable, easy-going, comfort-loving are correlated; somatotonia (corresponding to mesomorphy) in which the traits assertive, adventurous, uninhibited cluster together; and cerebrotonia, in which the broad surface trait is formed by the trait elements: shy, sensitive, intense, inhibited. These clusters have been confirmed, occurring among the fifty nuclear clusters found by the present writer, but their emphasis as a trinity of exceptional importance for personality and the confirmation of their alleged high correlations with the physical morphology remain to be confirmed.

A possible solution to some of the contradictions, in terms

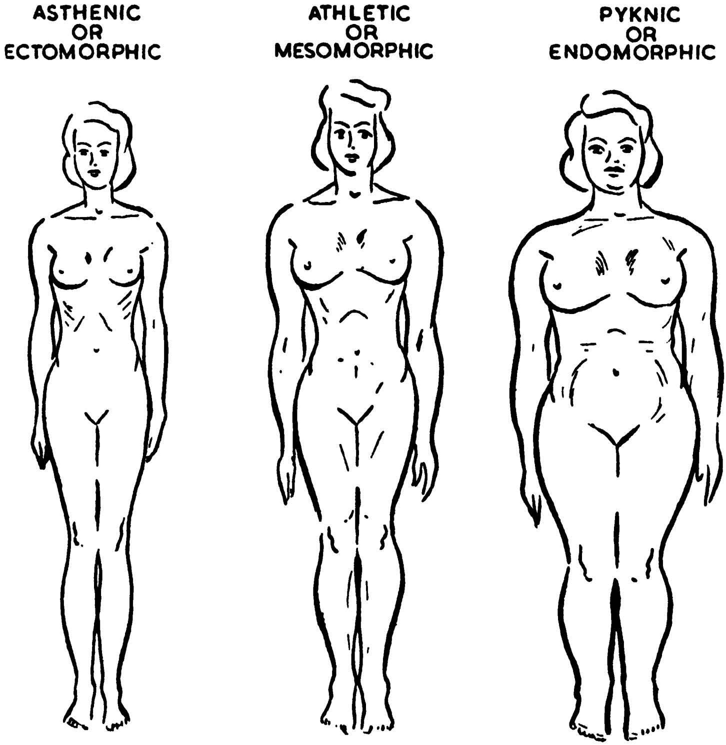


Diagram III.—Three principal components recognized in Physique. (After Sheldon and Kretschmer).

of resolution into independent factors, is given in Chapter IX. Sheldon's clusters are highly correlated among themselves, e.g. somatotonia correlates —0·62 or more with cerebrotonia, which makes his system of assigning independent scores to the individual in each component rather unsatisfactory.

The correlations reported between measures of physique and temperament in the above patterns vary between 0·1 and 0·8, with a central tendency around 0·3–4. (*see* Burt (Chapter II (1)) Sheldon (10), Fisk, Cabot (Chapter VIII (2)). Unless more accurate measuring devices raise this figure we shall have to conclude that, though some mutual dependence exists between physique and temperament, there remains more than half the variance in these large source traits that cannot be accounted for by somatic, constitutional differences.

More recently it has been shown by Draper and others that with the narrow build of the schizoid goes also a greater proneness to stomach ulcers, to anxiety and tension and to excessive excitability of the autonomic nervous system (which regulates emotional expression and the internal chemical adjustments of the body, as described in Chapter IX). It is interesting to note that in 'conditioning' experiments with dogs the long, lean breeds likewise showed more excitability, tension and quicker learning and extinction of reflexes than did the bulldogs, basset hounds, etc. (Chapter VIII (12)).

Other relations of physique and temperament that bear on heredity, notably the endocrine patterns and the relation of nerve physiology to surgency-desurgency of temperament, are discussed in Chapter VIII on physiological psychology.

One of the few suggestive racial physique associations is that found between 'disposition rigidity' measurements (*see* Chapter VIII) and Nordic-Mediterranean racial differences. In the same national-cultural group, for example, a sample of British students or schoolboys, the fair, blue-grey eyed, taller, long-headed Nordic types show significantly lower rigidity score than the dark, curly-haired, olive complexioned, brown-eyed and shorter Mediterranean individuals (Chapter I (2)). It was also found that individuals of low disposition rigidity tend to get interested in science and mathematics. while those of high rigidity show a just perceptibly stronger inclination to gravitate to languages, history, drama and religion.

On these grounds and through comparisons of twins, a real hereditary influence in ergic rigidity and all that it stands for must be admitted. It is interesting to note that many years ago Havelock Ellis and Onslow, studying the portraits in the National Gallery, noticed the same tendency for the fair and light-eyed to predominate more in the field of scientific eminence, the armed forces and political radicalism, while great historians, linguists and divines were more frequently dark.

What gene or genes are operative here to produce both the physical characters and the associated temperamental differences determining greater interest in impersonal things on the one hand and personal and emotional issues on the other, remains to be discovered.

5. ANIMAL STUDIES AND HUMAN INHERITANCE

Geneticists are apt to get impatient with studies of human inheritance because human beings take so long to breed. The experimenter barely has time to observe two generations before his own time is up. This and the greater control of animal breeding has caused much experiment to be done on lower mammals, even though at the end of the experiment one still has the problem of deciding to what personality trait in the human being the observed trait in the animal corresponds. As far as temperament is concerned there is little reason why the rat and the dog should not be as apt to throw light on human psychology as they are, in medical research, to illuminate human physiology. But were abilities and dynamic integration are concerned we have to proceed with great caution.

The earliest studies concerned inheritance of ability. Tryon took a large group of rats and gave each a score on 'intelligence' as judged by quickness and freedom from error in running a maze. He then split them into a bright and a dull tribe and bred in each generation from the brightest of the former and the dullest of the latter. In five or six generations they became widely separated in ability and after sixteen or so the dullest of the 'intelligence-bred' family learned a maze quicker and better than the brightest of the dull family. The high degree of inheritance shown here agrees well with that found for general ability in human beings, though, as mentioned in the last paragraph, it would be an assumption to conclude in both species we are dealing with just the same kind of ability.

Studies of temperament in animals began with Rundquist and with Brody, who were interested in 'level of spontaneous activity', and measured it in rats by time spent on a 'play wheel', etc. Both found that strains could be bred in as few as five generations with significantly different averages. Rundquist got practically complete separation, i.e. absence of overlap in activity measure, in twelve generations and found that the more phlegmatic or lazy were also more frequently sterile, had smaller families and took longer to reproduce. Brody further concluded that the strains differ with respect to (the frequency of) a single gene, rather than with respect to multiple factors.

Again it has been shown that wildness and tameness in rats are inheritable and associated with coat colour. Environmental differences, such as the association of tame adults with wild young and vice versa, have an indiscernible effect on the degree of wildness. Experimental studies on rats also show a considerable inheritance of general emotionality and of proneness to 'neurosis' in the conflict situations described in Chapter VI.

Apart from experiment it is possible to point to innumerable instances of different mental inheritance in different breeds of a single species. Among dogs there are some that can be trained to do the work of a sheep dog and some that cannot; there are pointers and setters and there is the peculiar make-up of the Dalmatian, apparently due to a single dominant gene, which causes him happily to run beneath a carriage at the heels of the carriage horses! Altogether, in human and animal mental inheritance we are faced with an array of evidence of specific liabilities, abilities, aversions and pronenesses, among which we have scarcely begun to produce intelligent order.

One of the most debated inheritances in the human personality concerns what used to be called instincts or drives. Not only the mammals, but practically all branches of the animal kingdom, illustrate definite modes of unlearned behaviour concerned with the various aspects of self-preservation and race preservation. Mammals show inborn tendencies to pay attention to certain classes of objects, e.g. food, creatures of the same species but opposite sex, dangerous situations, etc. They experience the bodily commotion of a certain emotion in regard to each and seem impelled to act in a way which brings them to a definite goal, e.g. eating, mating, escape from danger.

Since it is impossible to experiment on man to the extent of leaving naked babies on desert islands, the person who chooses to doubt that man inherits drives cannot be convinced. The evidence is naturalistic, circumstantial and very widely scattered in our cultural life and consequently needs an intelligent eye and a level mind to get it in proper perspective. The viewpoint of certain more enthusiastic than discreet cultural anthropologists that the basic similarities in human behaviour are not due to inherited instinctual patterns but to cultural pressure can, however, be refuted at once by the fact that culture spends most of its time *opposing* these drives and trying to keep sex, food-seeking, fear and anger within bounds—the bounds of the culture pattern.

To avoid the confusions of past debate the present writer has suggested the term 'ergs' to describe the equivalent in man of animal instincts. Human ergs are more plastic than animal instincts. They are predispositions or propensities to certain interests and ways of behaving, which can be deflected and modified by education. The innate ergic pattern may never in fact appear, but it can be inferred from experimenting with learning gradients, i.e. by discovering what modes of behaviour can be taught with great ease and what modes only with great difficulty. It is possible, as the cultural anthropologists assert, that a young man has to be taught to kiss girls or a duckling to take to the water, but these modes of behaviour are learned more quickly than, say, taking square roots or chasing mice, respectively.

The student who has the necessary foundation of general psychology will know that some dozen or so ergs are tentatively recognized in man, though more factor analytic study, particularly with mixed behavioural and physiological observations, will have to be done before these can be definitely delineated. They include food-hunting, mating, disgust, and avoidance, fear and escape, self-assertion, self-submission, despair and appeal, curiosity, gregariousness, pugnacity and perhaps laughter and constructiveness. In each erg we notice four aspects: (1) spontaneous attention to a certain class of stimulus object; (2) A specific emotional feeling about it; (3) A course of action leading to; (4) A goal or goal-activity which produces satisfaction. All aspects but (2) can be modified by training, though shifting of the goal, i.e. what is called sublimation (page 101) is extremely difficult. This whole matter is taken up systematically in Chapter IV, in the study of dynamics.

The question of whether these ergs are actually inheritable in different strengths, for different people, i.e. whether 'disposition' is hereditary, is of considerable interest for personality study, but cannot yet be definitely answered. Perhaps even more important is the question whether individual differences in plasticity, docility or educability of ergs is the same as that ergic rigidity which we have mentioned earlier (page 164). For mental conflict, the liabilty to neurosis and all that adjustment process which we study below under the name of psychodynamics, will depend very much on the individual's limits of plasticity. Freud believed that there were innate differences in liability to neurosis (as results above prove) connected with the extent to which the individual possessed the 'psycho-sexual constitution'—a tendency to regress to earlier ergic attachments, which may be the same as our 'ergic rigidity'.

6. SUMMARY ON INHERITANCE AND PERSONALITY

(1) It is necessary to distinguish between 'parental inheritance', 'total ancestral inheritance', 'inborn qualities', 'congenital qualities' and 'constitutional qualities', which are increasingly inclusive in that order.

(2) The methods of investigating inheritance require us to distinguish between learned characteristics and those inherited characteristics (such as the sex instinct) which appear late by a process of 'maturation'. Research approaches include (*a*) comparison of persons having the same environment but different inheritance, e.g. identical and fraternal twins, siblings and unrelated persons in the same family, members of orphanages, etc; (*b*) Comparison of persons having the same or similar inheritance but reared in different enironments, e.g. twins reared apart, siblings reared in different families, experimental groups subjected to different influences; (*c*) Breeding experiments with animals; (*d*) Genealogical studies with human beings—

especially when the descent of some well-defined abnormality can be observed; (*e*) Tying up personality traits with body build and racial physical characters.

(3) The roles of inheritance and environment can be expressed by the 'nature-nurture' ratio and by 'manifestation rate' with regard to expectations of known Mendelian dominant and recessive relationships.

(4) Among personality characteristics with a very high nature-nurture ratio or manifestation rate were: General mental capacity, musical ability, manic-depressive disorder, Huntington's chorea. In the middle group are general emotionality, activity level, cyclothyme-schizothyme level, schizophrenia, liability to obsessional and anxiety hysteria, and ergic rigidity level. In the least hereditary group are liability to other neuroses, level of surgency-desurgency, dominance-submissiveness level, level of positive character integration (persistence, conscientiousness) and level of skills generally.

Although it is obvious that skills and interests as such are not inherited, any more than is crime as such, the temperamental traits which *are* inherited produce, secondarily, resemblances in such behaviour. For example, identical twins are more alike than fraternal in such special abilities as spatial, verbal, numerical and mechanical abilities. Similarly in Strong's Occupational Interest Test correlations between identical twins work out around 0·50 and between fraternals around 0·28. Consequently one must be careful not to assume that because a way of behaving is entirely acquired it may not also be strongly affected by heredity. Both are interwoven and require subtle analysis for their proper appreciation.

MORE ADVANCED READING

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CHAPTER III

PSYCHO-DYNAMICS I

THE RISE OF NORMAL PERSONALITY STRUCTURES

1. SUBSIDIATION OF ERGIC AND METANERGIC STRUCTURES

THE extent of dependence of personality development upon the germ plasm has been roughly outlined in the previous chapter. We can now turn to the fashioning of personality by environment. How does the individual, launched in the world with these hereditary pronenesses, limitations and talents, make of himself that which he eventually becomes?

Every psychological reaction—but one more than another—is capable of modification by learning, i.e. by experience. Traits such as the total span of intelligence, or temperamental excitability or reflex responses to pain, etc., can be modified very little. The greatest modification goes on in what we have called dynamic traits—the habits of reacting to particular stimuli and being interested in particular goals. It will be the task of the next few chapters to take a survey of the typical dynamic traits of man and to clarify the principles by which they change and develop: for this is a major part of the story of personality.

In the first place it is obvious that some dynamic traits are more innate and resistant to change than others. We are born with an urge to seek food, which at first expresses itself through a collection of suckling reflexes. Later, the expressions of this drive settle into a variety of possible habits. The imperative is to eat. But whether our habits of seeking food shall be those of the famous wolf children of India, or the hearty, two-fisted fashion of Henry VIII, or the more delicate style of the Savoy dining-room, is decided by the culture pattern to which we are exposed.

Personality—the habits of the individual—arises from the impact of an hereditary nature upon an environmental pattern. In studying dynamic traits it is necessary to get some idea of what the innate endowment of man may be, what changes it undergoes and in what general pattern it finishes up. The best order for this study would seem to be to begin with what is most certain, namely, the pattern of dynamic traits in the typical civilized man. By contrasting this equipment with whatever picture we can obtain of the hereditary dynamic endowment we shall delimit the learning changes that have to be studied and accounted for by principles governing the action of environment.

The dynamic trait[1] equipment of the normal civilized man is represented by what are commonly called drives, interests, attitudes and sentiments. Let us facilitate discussion by sorting these out into precise subdivisions. 'Interests' is a generic term, synonymous with 'dynamic traits'. 'Attitudes' and 'sentiments' are different 'sizes' of the same type of thing, namely, of acquired modes of reacting—interests of a particular kind in particular objects. However, among these normal interests of the civilized man we see, occasionally, the breaking out, of crude unmodified innate drives on the one hand and irrational, unconscious 'complexes' on the other. The unmodified erg[2] peeps through when the deacon throws his dignity to the winds and runs wildly from an irate bull, or when the company director throws propriety overboard and sits his stenographer upon his knee. The 'complexes' of the neurotic are merely indicated here and examined more fully later.

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[1] Let us remind the reader precisely what is meant by a dynamic trait. Basically, like any trait, it is an inference from behaviour, an *inferred mental structure* set up to account for a man repeatedly reacting in a certain fashion. Naturally, in so far as we believe in parallelism of body and mind, we suppose also that such traits have an underlying neural structure in the brain. But the *trait* is not a physical thing in the brain, indeed, it would not help much to consider the physical brain at all, for at present, with a few exceptions, we know less about the nervous functioning than about the behaviour or the trait concept connect ed with it.

[2] The term erg and ergic will be used where the popular description uses 'drive' and 'connected with a drive'. 'Instinct' and 'propensity' are also terms replaced by 'erg', for greater accuracy and freedom from historical misconceptions. An erg will be precisely defined when sufficient background has accumulated to do so. For the present the reader who has not encountered the concept in the present writer's or other general psychology textbooks may consider it approximately equivalent to the older term instinct or propensity. Ergic, therefore, means instinctive, unlearnt dynamic purpose.

All forms of acquired dynamic traits may be called *metanergs*, because, as we shall see, the metanergic structures can be shown to be derived from ergs. How shall we begin to examine this metanergic structure? There is no point in making an inventory of human metanergs—of the common interests, attitudes and sentiments of the average man—for we are sufficiently familiar with them in everyday life. What we need to do is to develop *methods* of disentangling structure—of finding how interests are related one to another and what interests tend to form 'functional unities'.

That interests tend to build up in sequences, one serving another, is common knowledge. For example, a man may become more sociable and socially skilful in order to earn his living as a salesman, and in order to be more socially skilful he may in turn acquire strong interests in language and vocabulary, i.e. he acquires a trait of fluency. Technically we say one trait or habit is *subsidiated* to another. The clinical psychologist, e.g. a psycho-analyst, spends much of his time trying to trace subsidiations where the connecting links have become unconscious. He wants to know to what larger dynamic trait system or structure a particular set of symptoms belong. What purpose, for example, does an hysterical blindness serve?

The method of tracing chains of dynamic subsidiation and thus getting a picture of existing dynamic trait structure are, broadly, two. First we may, as with abilities, compare many different people. If we find that interest A is always high when interest B is high, and vice versa, we can infer that some common dynamic structure underlies A and B. For example, if we find that soldiers are also generally very fond of hunting we may suspect that some common interest, perhaps an innate erg, underlies military and hunting manifestations. Secondly we may take a single individual and observe how interests vary from day to day in him. For example, if a little boy gets a temperature and a rash whenever his mother goes away we may suspect the former to be a psychologically determined expression of the need for his mother. Or if a man's thoughts of his fiancée are generally followed by thoughts about her bank account we may suppose that his interest in her is subsidiated to an interest in her fortune.

The second method was historically developed first, notably in the 'free association' method of psycho-analysis, in which the individual allows his thoughts to run forward freely, along purposive rather than logical lines. Where many of the subsidiations are not hidden in the unconscious, however, the same end can be achieved simply by *asking* anyone why he does any particular action. Let us see what transpires through this rough (and perhaps risky!) method by imagining the results of its application to some frank and friendly individual performing an oft-repeated action. Perhaps we might take a young naval officer industriously working in his chart room on a navigation problem and ask him why he is doing so. He will probably reply that he wants his captain's commendation and the reputation of being a good professional navigator. Usually there will not be one reason but several: for singleness of purpose, in the literal sense, is a rarity in human behaviour. Thus he will say he is working also for the safety of the ship and the good of his country. But let us follow up one branch only and ask him next why he wants to be considered good at his profession. He may reply that he does so because he wants to be sure of his salary.

If we continue rudely to reiterate 'why?' to each reply there will come a point where, even if his friendliness survives the ordeal, he will be unable to reply again. For instance he may say that he earns a living in order to be able to eat. But if we say 'Why do you want to eat?' he will halt with surprise at our foolishness.[1] We have come here to a biological goal, the enjoyment of which seems immediately worth while and requiring no further justification.

We have followed here what will be called a *dynamic subsidiation path*, from an attitude to his work, to a sentiment about his profession and finally to a basic, biological, ergic goal. Other attitudes would be found subsidiated to other sentiments and these in turn to other innate biological goals. In animal study we encounter the same paradigm of subsidiation of intermediate goals or means-ends-readiness (Tolman), to a final goal, as when an animal learns to press a lever, to get a wooden token and to carry the token to a hole in the wall in order to get a pellet of food. This goal-gradient paradigm is shown in Diagram IV.

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[1] He may say 'In order to live' but this is a sophisticated answer, not based on dynamic insight—and untrue besides. For condemned men may eat a hearty breakfast.

In human dynamic psychology the terms attitude and sentiment can almost be used interchangeably, having no sharp line between them; but it is usual to reserve sentiment for the later, more massive, more composite and more permanent attitudes in the subsidiation, and to use attitude for the slighter, more specialized 'intentions to act'. For example, we speak of a man's sentiment to his home or country, but of his attitude to the neighbour's dog or the gold standard. The usage is precisely parallel to that of the terms twig and branch in describing the arborizations of a tree. The dynamic network, however, has the added complication of interflux or crossing of the trait ramifications, which will be discussed in connection with the dynamic lattice of Diagram XI below.

Our preliminary analysis of dynamic traits thus works on the assumption that traits are best labelled and analysed in terms of *purpose.* It is usual and helpful in dynamic psychology to distinguish between *purposive* and *purposeful.* The former refers to behaviour having a purpose, even though not known to the organism, as in the sexual behaviour of animals, and, the latter to *knowing the object of the behaviour* in addition, so that the goal can be in consciousness as well as in the blood.

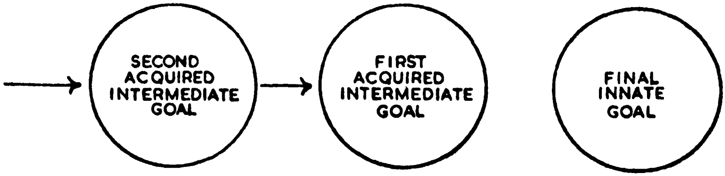
SECOND ACQUIRED INTERMEDIATE GOAL
FIRST ACQUIRED INTERMEDIATE GOAL
FINAL INNATE GOAL

Diagram IV.—Subsidiation Chain of Intermediate Activities and Goals to Final Goal.

The view that dynamic traits are always[1] to be defined as purposive is sometimes called the telic or teleological theory; but we must beware of letting this term involve us in the largely philosophical disputes which come in its train. As used here the notion of teleological causation of dynamic behaviour simply means that animals behave *as if* thrust forward to a certain goal satisfaction. It does not mean a new form of causality—in which an event an hour hence *causes* an event now—which would be different from ordinary scientific causality. Thus the water which is the goal of a thirsty animal's activities, cannot be said, in the scientific sense, to be the *cause* of the behaviour. The real cause of the dynamic behaviour is doubtless some existing *goal tension*, which we can sometimes, in appetitive ergs, locate even as a physiological or anatomical tension, e.g. stomach contractions in the animal thinking of food. But usually this tension is only something inferred from the behaviour and regarded as proportional to the distance yet to go to the goal. Operationally, and especially where measurement of the strength or stage of the drive is concerned, it is easier to speak *as if* the goal caused the behaviour and to operate with the existing goal tension as a *construct* from the known distance to the known goal.

At this point it is necessary to define more precisely for purposes of measurement, the parts and dimensions of a dynamic trait. An attitude, sentiment, erg or any other dynamic trait can be represented verbally by the formula:

> "In these circumstances I want so much to do (or to bring about or have done) *this* with *that*."

The term *this* refers to a course of action, eventually subsidiated, through various 'in order to' relationships, to a final ergic goal. This course of action, as will be seen below, can actually be expressed in dynamic calculations as a direction. Thus we speak of an attitude as being pro or con, but more refined methods reveal many intermediate directions between straight 'for' and 'against'. An attitude (or other dynamic trait) involves, however, strength as well as direction. This is expressed by '*so much*' in the above formula. Finally a dynamic trait involves a *stimulus situation*. This is expressed in the above formula by 'In these circumstances' and the object '*that*'. If we wish to include not only behaviour but also a peep into the individual's consciousness the definition of a dynamic trait will involve also a description of the accompanying emotion, as described under primary and secondary emotions below.

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[1] It is sometimes said by clinicians that not only all dynamic traits but all behaviour is purposive. This may be true, but it would still be possible to abstract from behaviour the three kinds of traits—temperament traits, abilities and dynamic traits. The purposive 'why' pattern concerns dynamic traits; the abstraction of 'how' the task is done constitutes the ability trait; the rest is temperament. (See the present writer's Description and Measurement of Personality, Chapter VII.)

2. SENTIMENT STRUCTURE AND THE DYNAMIC LATTICE

Any object in which one is interested normally has several attitudes converging upon it, i.e. there are several things one wants to do with it, depending on circumstances. In other words it stands in the stream of several dynamic traits, has several emotional meanings or 'valences' and appeals to several interests. Each of the attitudes subsidiates to several different sentiments. For example, my chief attitude to my bank account may be that I would like to increase it *in order that* (1) I may get my wife things she needs (sentiment to wife); (2) I may paint my house (sentiment to home); (3) I may buy certain books on photography (sentiment about a hobby), and so on. The subsidiation lines converging on a sentiment object will in turn diverge among several ergic goals. For example, a sentiment to a wife may be built up on satisfactions accruing to the gregarious erg, the sex erg, the food-seeking erg, and so on.

Any of these emotionally invested objects of attitudes and sentiments is likely to be also a large part of the recurrent stimulus situation for the purposes it satisfies. Since these situations are fairly fixed items in the total life situation of the individual and his reactions are habitually made to them, the personality structures corresponding to attitudes, and, still more to the relatively permanent sentiment objects, will be comparatively stable channels of dynamic discharge.

Allport (1) has suggested that it is inherent in mental

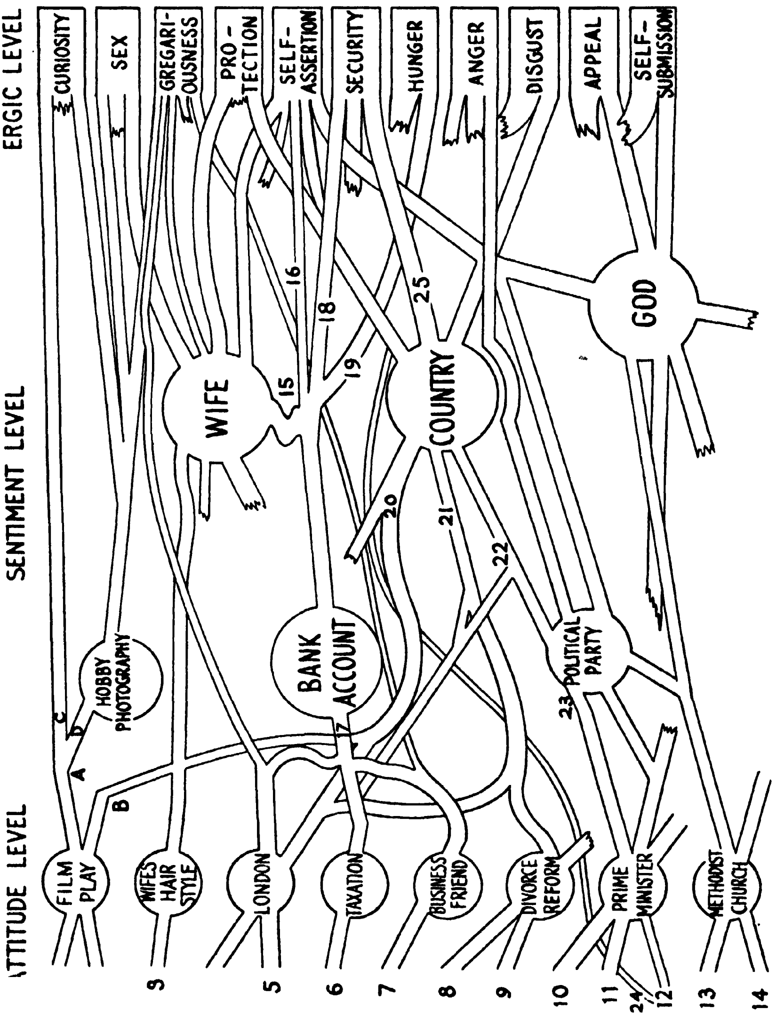

Diagram V.—Illustrating Typical Subsidiation Sequences of Attitudes, Sentiments and Ergs.

operations to become *functionally autonomous*, i.e. for time and repetition to cause sentiment purposes to become satisfying in themselves, even if they no longer subsidiate to ergic goals. This theory raises complex questions which we can leave till later (page 95). Psycho-analysis, on the other hand, has emphasized the eternal lability of drives, whereby a habit which is a means to an end loses all potency at once when some better subsidiation path to that end appears. In this connection one may call attention to the notion of 'equivalence'. Two courses of behaviour, i.e. two attitudes or sentiments, are called equivalents when they offer alternative paths to the same goal. This is frequently illustrated in neurosis where two symptoms may alternate, or where a symptom may appear whenever some equivalent 'normal' outlet is blocked. Equivalents are shown at 18 and 25 in the lattice diagram, showing emphasis on two alternative expressions of the need for security—through ensuring the strength of one's country and through building one's bank account —the resort of the socialist and the resort of the capitalist.

The sentiments are thus to be defined as acquired dynamic traits (structures) which cause their possessors to pay attention to certain concrete or abstract objects (symbolized concretely) and to feel and react in a certain way with regard to them. The feeling in a sentiment is a combination of the primary emotions connected with the ergs feeding the sentiment. These derived or secondary emotions, as they are called, may be illustrated by the emotion of admiration (e.g. for an institution, virtue, or leader) which is composed of wonder (erg of curiosity) and negative self-feeling (erg of self-submission); or by hatred of an enemy of one's country which is a blend of anger (erg of pugnacity) and fear (erg of escape) for the safety of the things one loves. Again, scorn is a blend of anger and disgust, as loathing is a combination of disgust and fear. Into the derived emotion of reverence, connected with the functioning of what has always been one of the most powerful sentiment structures binding man to his culture—that toward religion—there enters a most complex variety of dynamic threads, principally involving the drives producing emotions of fear, gratitude, negative self-feeling, tender feeling, and wonder.

To know a man's sentiments and attitudes is to know a good deal about his personality. We know on what interests he will spend his time and energy, what he will love and hate, strive for and against. A man with deep and stable sentiments will manifest reliable, predictable behaviour and will not be at the beck and call of every wayward ergic stimulus as will those who approximate to those abstract entities—'the natural man' or the entirely cultureless savage. Yet the growth of sentiments, i.e. of metanergic attachments of all kinds, draining off energy from reactions to aboriginal ergic stimuli, is not the sole dynamic reason for behaviour becoming more 'civilized'. The further causes will be encountered two sections below.

3. PSYCHO-DYNAMIC CALCULUS

It has been said that science is not science until it measures. Only when a science joins hands with mathematics, the queen of the sciences, has it come of age. Precision came to the measurement of abilities a generation ago; it has become reasonably established in the measurement of the great personality source traits of temperament; but in the complex field of psychodynamics the possibilities of mathematics and measurement have scarcely yet entered into the heads of most clinical psychologists.

If sentiments, attitudes, and ergic drives have a real existence they can be measured. The drives will be common to all men, while sentiments and attitudes of a certain kind will be common only to all men in a given culture (one cannot have sentiments to a certain church or to monogamy where these do not exist!). Common traits can be measured in standard deviation units; unique traits—as some sentiments are—would need to be measured in personal units, i.e. by *ipsative* standardization (Chapter VII (2)).

At present we do not even know what the most powerful sentiments in our culture are. Murray (5) has made a list of 'presses' as he calls them, i.e. the environmental objects that are supposedly most important and most invested with interest; but this is not based on measurement. Presumably we should find country, religion, wife, child, and property somewhere at the head of the list for the average man. We should also find powerful sentiments about profession, hobby, politics, school, the physical home, food styles, clothing, and about one's friends and business associates.

To measure a sentiment it is necessary to find the average of a fairly large number of attitudes clustering about the object concerned. What attitudes should be included as true unitary dynamic traits must first be found by factor analysis, though a sufficiently good guess could be made from common sense. Whenever we measure anything we have first to separate and define what we are measuring. A sentiment manifests itself in a fairly large number of attitudes clustering about the object concerned. If sentiments are to be measured on a common scale we must take the same structure of attitudes in all people. How are we to determine what this structure is and what shall and shall not be included when measuring it? So far we have described only the first method of tracing subsidiations—the method of clinical psychology and psycho-analysis—but as we have seen above there exists a second and radically different method, that of correlation and factor analysis.

Factor analysis is not systematically described until Chapter VII, but its principle can be understood from the ordinary correlation coefficient. If we correlate for a normal population the measured strength of many individuals on many attitudes the correlations should show that the attitudes involved in a single sentiment to some extent *vary together*. For example, if a man is interested in his church his attitude is likely to be stronger than that of an uninterested man not only in (1) strength of interest in prayer and (2) desire to see missionary work succeed, but also in (3) the good singing of hymns or (4) desire to contribute to the church building fund. That is to say, measure of these four sub-attitudes should correlate positively, showing the existence of a unitary sentiment. This indeed is the operational definition of a sentiment.

The common institutions which become the objects of common sentiments act, in short, each as a single environmental mould, impressing on the individual more or less of *every* part of the pattern, according to the total 'pressure', as it were, with which that mould has been applied to him as a whole. Even of marriage it may be said that there are not only married and unmarried men, but also that some men are more married than others. Sentiments should thus be demonstrable by factor analysis as *group factors* constituting *social mould traits* (2). The items—attitudes—which enter into the group factor would be those which we should need to measure and average in order to estimate the strength of the sentiment in question.

Similarly, if we wish to rate or measure an individual's strength in a certain ergic drive—say, self-assertiveness, gregariousness, pugnacity or amativeness of disposition—we should average his 'score' in many situations in which the disposition normally shows itself. Again we can choose these situations by common sense or, better, discover them and their relative weighting by a factor analysis of attitudes in many situations. For example, for the common man, it may be that his pugnacity shows itself most purely in attitudes concerning the security of his country, in attitudes toward the institutions of his political opponents and, if he is married, in attitudes to those who would threaten the happiness of his marriage. Most men could be fairly accurately assessed by this common trait 'loading' of items, but a few with unique traits expressing pugnacity in peculiar forms, would need the items to be weighted in the manner indicated by a P-technique study (Chapter VII (2)).

The above pre-supposes that factor analysis of a number of 'strength measures' on a host of dynamic traits will yield a dozen or so group factors corresponding to the major ergs of hunger, fear, sex, pugnacity, etc.; but research is now only beginning to give results of this kind (2). In animal study, where the situation can be controlled by experiment, it is often assumed to be unnecessary to undertake the complex statistical analysis required with human life. Experimenters have assumed that the individual drives can be quite easily picked out by inspection and knowledge of the kind of deprivation enforced in the experiment. However as E. E. Anderson has shown, we cannot always be sure of the drive under which the animal is acting, and it is desirable to define animal ergic structure by correlation as with humans. The following demonstrates the results of attempting operationally to determine ergic patterns in the rat, by setting up definite test situations and finding out which strengths of motive 'go together' when one compares a whole series of individual animals.

Investigation of Unitary Ergic Patterns in the Rat[1]

TABLE 1

Intercorrelations among behaviour measures involving thirst or interest in drinking (51 rats)

	2	3	4
1. Amount drunk (per gram body weight)	·07	·63	·19
2. Readiness to face shock for drink		·01	·09
3. Drinking time			·16
4. Readiness to jump to get water			

Intercorrelations among measured behaviour involving sex interest (51 rats)

	6	7
5. Frequency of copulation	·57	·44
6. Time prepared to wait at barrier to mate		·15
7. Readiness to jump over obstruction		

Intercorrelations among behaviour measures which might be motivated by the erg of curiosity (51 rats)

	9	10	11
8. Extent of exploration of Dashiell Maze	·65	·51	·40
9. Extent of wandering over open field		·49	·65
10. Extent of exploration among pegs on a wall			·36
11. Extent of wandering when hungry			

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[1] Extracted from the carefully controlled experiments of E.E. Anderson. 'The Interrelationship of Drives in the Male Albino Rat.' Comparative Psychology Monographs. Vol. XIV, 1938, pp. 1–118.

The intercorrelations between the measures in the different areas (e.g. 1, 2, 3, 4 with 5, 6, 7, or 5, 6, 7, with 8, 9, 10, 11) were negligible; but, as will be seen from the correlations within one area (with a few exceptions in the realm of thirst) there is evidence therein of a unitary dynamic trait—an erg, operationally defined.

The measurement of ergic strengths in rats, cats, dogs, etc., has proceeded principally by three methods: (1) The obstruction method, which places a painful electric shock between the animal and his goal and records how often he will pass it. (2) The choice method, which puts the animal in a state of hunger, sexual deprivation and/or fear before the corresponding alternative satisfactions and observes which he chooses. (3) The learning method, which discovers with what relative speed the animal learns a maze or some motor skill under different kinds of motivation. The agreement of different methods, with animals, is reasonably good, offering the following order of strength for certain ergs of the white rat.

TABLE 2

	Strength (recorded here by the obstruction method, in units of 'number of crossings')
Maternal erg	22·4
Thirst erg	20·4
Hunger erg	18·2
Sex erg	13·8
Exploration erg	6·0
Unknown Motive	3·5

Before assigning numerical values to strengths of basic drives in man or animals, however, it behoves us to clarify our concepts. Principally it is necessary to remember that the amount of work the creature does under the influence of a given drive depends partly on something which might be called constitutional strength of drive and partly on the extent to which it is continually under stimulation and deprivation in the given circumstances. Clinical psychologists frequently generalize that sex, self-assertion, and security are the three most powerful drives in man. But Christian culture frustrates or deprives the first two more than most others, and a world at war frustrates the last a great deal. If men lived in conditions of famine their preoccupations, conflicts, and neuroses about food-seeking might be even more prevalent than those now centred on sex.[1]

If we take a representative set of stimuli for various drives and measure their dynamic investment by (*a*) the strength of the psycho-galvanic skin reflex—a physiological device for measuring conation, and (*b*) the extent to which people *remember* these stimuli—a fair measure of their interest in them—we get a very good agreement on the order of strength of human drives. A third device (*c*) measuring the strength of attitudes known by factorizing to be weighted with a given disposition, has not been tried, while a fourth (*d*) analysing the amount a person spends for the satisfaction of each erg, falls down on the difficulty of analysing the basic needs behind any given monetary expenditure.

Experimental work on human drives has been done by three of these methods, indicated in a little more detail, as follows:

1. Measuring the psycho-galvanic reflex response to words or pictures representative of the various ergic satisfactions. As will be seen in Chapter XII this electrical skin reaction is a fair measure of conation.
2. Measuring the natural retentivity for stories or ideas connected with the satisfaction of various drives.
3. Observing the distribution of involuntary attention among pictures representing various instinct satisfaction situations.

Colman and McRae, using the first method, obtained substantial agreement with the present writer's results on the last two methods, the order on McDougall's classification being, as follows:

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[1] Since the writing of these lines the supposition has been confirmed by Dr. Brozek's studies of voluntary starvation in a group of subjects at the University of Minnesota. 'Pre-occupations, conflicts and neuroses' were indeed amply produced.

TABLE 3

Strength of Ergs in Man

Erg	Colman and McRae's Method	Cattell's Method
Mating	1	1
Self-Assertion	6	2
Pugnacity	5	3
Repugnance	9	4
Appeal	Not included	5
Hunting	Not included	6
Laughter	Not included	7
Self-Abasement	2	8
Construction	Not included	9
Flight	3	10
Curiosity	7	11
Protection	4	12
Gregariousness	8	13
Acquisition	10	14

Thorndike, after a preliminary study of object expenditures, had these analysed by psychologists into the needs which were assumed to be involved. The following are some of the drives assessed, in descending order of strength, with the expenditures expressed as percentages of total expenditure.

Hunger	11·2
Protection against cold, heat, wet	10·2
Social entertainment	4·2
Sex entertainment	3·9
Exercise	0·8

It will be noticed, from Table 1 that the order of strength is very much that which clinicians have told us to expect, but we must not for a moment forget that this order concerns strength of drives at the *dissatisfaction level set by our culture.*

The measurement of dynamic traits generally can be summarized by considering now, with more precision than in the introductory part of this chapter, the measurement of attitudes. Psychologists, but more especially sociologists, have devoted much research time to measuring attitudes, but it has been consumed mainly on attitudes which are superficial from a personality standpoint and by methods which have measured strength but not direction, so the results contribute nothing to this chapter. Attitudes are vectors, as shown in Diagram VI, the directions of which are given by their ergic co-ordinates. Thus let us consider attitudes of 'desiring to belong to a choral society' and 'desiring to belong to an exclusive club'. These are taken because it is reasonable to assume that the same two ergs—gregariousness and self-assertion—are the motives behind both, though with a difference of emphasis that will permit us to illustrate the analysis of 'direction'. We shall suppose that a previous correlation study has shown that a person's score on the choral attitude measures factors with a loading of X on the first factor (self assertion) and Y on the second (gregariousness). Then the attitude to choral, I_c, can be represented geometrically as shown in Diagram VI or algebraically by the equation:

$$I_c = yF_g + xF_s.$$

The equation also enables us to predict the strength in a given individual i, as is shown by the notation I_c, and by F_{ig} and F_{is},

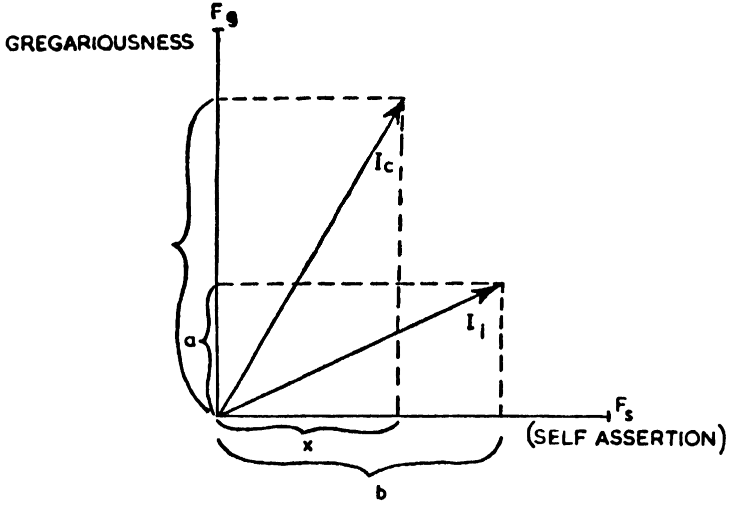

Diagram VI.—The Ergic Direction of Attitudes.

which are the individual's own endowments in the dispositions of gregariousness and self-assertion. Similarly the attitude Ie, to belong to an exclusive club, may be presumed to aim, relatively, at greater satisfaction of self-assertiveness. Consequently factorization may yield in this case the loadings for the two ergs involved shown by a and b. The difference in direction of the two attitudes can then be readily expressed by comparing the cosines of their angles, i.e. $\frac{x}{\sqrt{x^2+y^2}}$ and $\frac{a}{\sqrt{a^2+b^2}}$. The values a, b, x and y are, of course, common values, for everybody, expressing the directions of these given common attitudes, and obtained from correlations on a large group of people. The individual strengths in attitude or interest derive from the individual strengths of disposition, F_{ig} and F_{is}, entered in the above equation. The reader will notice that this is only a particular statement of the general proposition in mental measurement set out at the end of Chapter VII (second item of the chapter summary).

Interest is thus a quantitative aspect of a dynamic trait. The trait is then given fuller definition as an attitude or sentiment when we also define the dynamic direction of the interest. The value of this new calculus in problems of psycho-dynamic conflict is probably great, but at present we have to approach this next issue—dynamic conflict—without any data of a measured kind, working instead merely at the verbal level possible from 'artistic' skill in gaining clinical insights.

4. REPRESSION AND THE INTRA-PSYCHIC CONFLICT OF EGO, ID, AND SUPER-EGO

Subsidiation paths can be worked out to some extent, as suggested above, by asking people for what end a certain trait operates, or by some similar common-sense examination of their motives. But in normal people to some extent, and in neurotics and psychotics to an alarming extent, an answer cannot be given to the teleological 'why?' The subsidiation chain comes to a missing link in consciousness. Since psychology is inclined to believe that all behaviour is purposive, in the sense of satisfying, however unrealistically and maladaptively, an inherent need, we can only assume that the subsidiation chain is, in reality, unbroken. Certain sequences have merely fallen below the level of consciousness.

For our first insight into what happens at these points of arrest we are indebted to Freud and his studies (3), at the close of the last century, made upon neurotics. His generalizations began with the observations that the strange symptoms of conversion and anxiety hysterics could be understood and, what was of greater value to the patient, made to disappear, if certain emotional events, forgotten by the patient, could be brought back into consciousness. Certain immoral desires, usually associated with infantile sexuality, had been involved in events so painfully embarrassing or shocking to the subject that, by an unconscious but none the less positive action of some censorial part of his mind, he had banished them once for all from consciousness. The neurotic symptoms, the irrational anxieties and obsessions, the paralyses without physical basis, developed from this conflict.

The now generally well-known first contributions of psychoanalysis may be summarized very briefly, as follows:

(1) Ideas and recollections connected with drives which are badly at odds with the rest of the individual's dynamic structure, with his moral sentiments and self-regard, and which therefore tend to persist in painful conflict with the self, tend to be forgotten, by an unconscious act of repression.

(2) Repression dissociates a system from consciousness, making it inaccessible except to special methods of depth probing, e.g. hypnosis; free association. The dissociated system is called a complex and, since the mental energy connected with it is indestructible, it may continue to obtain expression indirectly, either by physiological consequences or by neurotic symptoms in the form of irrational anxiety, displaced sexual feeling, etc.

(3) In addition to the conscious mind we are forced to recognize the existence of a 'limbo' of outlawed impulses called complexes, or of drives which have never been allowed to

attain conscious expression. This is called the unconscious mind.

At first the main conflict was regarded as taking place between a conscious ego and unconscious anti-social, immoral, unrealistic desires in the unconscious mind, to which collective unruly desires the name 'Id' was later given. The ego gets its standards from society. It recognizes that the satisfaction of some desires is immoral, of others inexpedient or socially disapproved. It realizes also that by postponing satisfaction and taking account of the complexities of the real world a greater satisfaction may sometimes be obtained in the long run. This long-circuiting of satisfaction is typical of civilization and most sentiments and attitudes come into existence as long-circuited habits of ergic satisfaction.

The ego is in conflict with the id—the source of primordial instinct energy—because the id recognizes none of these things. It works on the pleasure principle of demanding immediate satisfaction, without postponement and without modification or complication. To the reiteration of the conscious ego 'conditions are such and such' the id repeats only 'I want'. The ego is thus the individual's intelligence and experience operating on the 'reality principle', desirous of obtaining as much satisfaction as possible for the id but incapable of obtaining as much as the id demands and, consequently, compelled to conflict with the id.

Later, the clinical students of neurotic behaviour were compelled to recognize that not all conflict is between ego and id. Many abnormal states occur, best typified by melancholia, in which there is very evidence of id responses being 'punished', yet where the ego is not aware of any nuisance from the id or of reacting repressively to such nuisance. Psycho-analysts were compelled by this and other evidence to recognize the existence of a third dynamic organization, the super-ego, which contains attitudes of moral stricture and brings ethical standards to bear imperatively on both ego and id.

The super-ego is in effect what we call conscience and the only reason for using another term is that certain properties are now recognized in it which have not been connoted in the past use of the term conscience. Analysts found that conflicts were not always between a 'good' ego and an amoral unconscious. On the contrary the unconscious was found frequently to harbour repressed intentions of an ethical nature, notably in certain delinquent types of individuals. As we shall see later, the reason for these moral inhibitions remaining partly in the unconscious is that they were acquired by the individual in that period of early infancy which tends to be forgotten in adult life.

The final picture of the dynamic structures involved in conflict is therefore as in Diagram VII. The wholly conscious ego—the will, guided by intelligence, experience, and emotional maturity—faces the external world with, on the one flank the rebellious claimant id and, on the other, the imperative moral power of the super ego. The super-ego is partly unconscious but also has its fully consciously realized moral scheme and set of habits. The self-regarding sentiment of McDougall, to be discussed in the next chapter, probably comprises the topmost conscious co-ordinating structure and therefore includes ego and conscious super-ego.

Whatever later elaborations may be made, this trinity within the dynamic structure of the individual remains basic. With its aid most of the problems of adjustment and neurotic breakdown

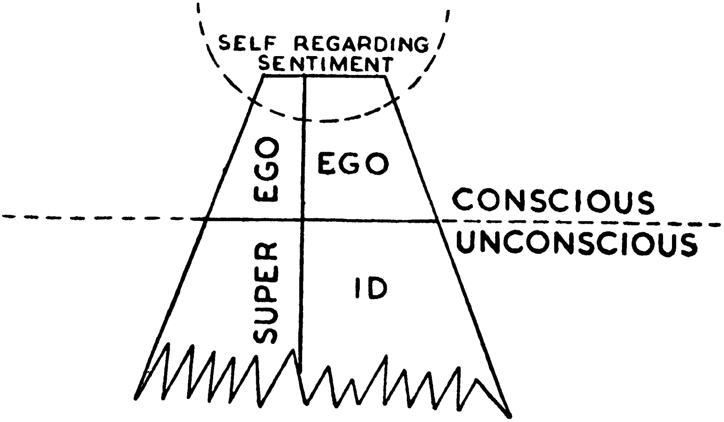

Diagram VII.—The Dynamic Structures in Personality as Deduced from Conflict.

can be most economically understood. It reminds us that most adjustment difficulties arise because the ego is faced with the complexities of the real world while at the same time meeting the demands of the id's 'I want' and the purely moral exactions of the super-ego's 'Thou shalt not'. If these pressures become too great the ego may, as in psychosis, simply give up the reality principle and refuse to have contact with the external world. Or it may try to defend itself by rash devices of expediency, frequently resulting, as we shall see in the next chapter, in neurosis.

5. SUMMARY CONCERNING DYNAMIC STRUCTURE

(1) Dynamic traits are structures inferred from the fact that the individual is repeatedly motivated to behaviour in certain stereotyped ways.

(2) Dynamic traits consist of attitudes (or interests) which are subsidiated to other more powerful attitudes or sentiments which are subsidiated in turn to basic biological purposes called ergs or drives. Attitudes and sentiments derive their motivation from ergs and may be called collectively metanergs. They form a dynamic lattice, showing subsidiation, equivalence and transflux.

(3) All dynamic traits, ergic or metanergic, show motivation directed towards a goal, on arrival at which action ceases. But this purposive (not necessarily purposeful) 'teleology' must not be confused with philosophical teleology in which cause follows effect. The cause is a 'goal tension', present in the organism while it is striving for the goal.

(4) An attitude or any other dynamic trait can be represented for purposes of calculation as a vector, defined both as to direction and to strength. The strength is the strength of the interest concerned, to be measured by the work it accomplishes. The direction is defined by co-ordinates corresponding to the basic ergs—the goals of endeavour which, as far as the organism is concerned, cannot be further resolved. The method of factor analysis, described below, can give us, by R-, Q- or P-technique,

the involvement in any attitude of the various ergs (general factors) and also the pattern of organization of attitudes in acquired sentiments (group factors).

(5) As far as the individual's conscious mind is concerned the pattern of subsidiation and equivalence of dynamic traits is broken up by the tendency of some links to become unconscious. Unconsciousness of motive has been revealed to be due in the first place to repression.

(6) Consideration of repression and neurotic symptoms calls attention to internal, intra-psychic conflict in the individual, which is described most economically by considering all dynamic traits to fall into three broad structural groupings, the ego, the id and the super-ego. The first is wholly conscious, the second wholly unconscious, and the third partly conscious partly unconscious.

MORE ADVANCED READING

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CHAPTER IV

PSYCHO-DYNAMICS, II. FURTHER ANALYSIS OF BASIC STRUCTURES AND FUNCTIONS

1. THE ERGIC STRUCTURE OF MAN

If the development of dynamic trait structures is largely the story of conflict and adjustment between innate drives on the one hand and the demands of environment—chiefly the cultural pattern—on the other hand, it is obviously of crucial importance to know what form the innate drives would naturally assume if uninterrupted. Only by arriving at precise notions of what we mean by innate, by 'tendency', and by the 'natural form' of a drive can we hope truly to understand the problems concerning ergic conflict, the 'education of the emotions' and personality formation. Consequently, the present chapter, in which the adjustment process is to be examined more closely than in the introductory fashion necessary in the previous chapter, must begin with the question of the essential ergic structure in man.

Although, as the student should be warned, this is a vexed and thorny question, the vexation has, unfortunately,[1] not been productive of new scientific methods; so that even today we are still in some doubt as to the number, nature and relative strengths of the drives that make the world of men go round. However, the differently expressed conclusions of different approaches are not so conflicting as they may at first appear.

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[1] To understand this it would be necessary to go into a complex history of the disturbance of science by social movements. Briefly one must say that the steady development of understanding which began with McDougall's biology, Freud's clinical observations and the experimental work of such as Tolman, Warden, Holt, Cruze and Zener, has been disturbed instead of aided by arguments from the immature science of sociology. Propagandists, playing on the popular demand for environmental 'magic', and disguised as 'social scientists' have had a large following. So also did G. B. Watson, even among apparently qualified psychologists, by such assertions as that conditioning could convert a mental defective into a genius. The concepts and methods for investigating innate patterns are too complex and delicate to be understood in groups susceptible only to gross formulations and to the appeals of wishful thinking. In so far as the opposition to the recognition

The chief approaches for understanding innate drive patterns are (1) the biological, comparative study of ergic structure in animals, which, by reason of the close relation to man of the higher mammals, especially the primates, should throw light on the nature of the drives in man, hidden by the veneer of culture; (2) the clinical study of abnormal human behaviour which, by pathological exaggeration, reveals motivations rationally disguised in the normal; (3) analysis of cultural behaviour in such a way as to separate acquired from innate aspects. This may be done by naturalistic, comparative observation and analysis of vast ranges of behaviour—as was done by McDougall, Freud, Woodworth, Murray and others—or by factor analytic techniques.

The first and third agree in pointing to some ten to twenty drives having an ergic pattern, i.e. *a pattern characterized by an innate preference to attend to certain objects, to feel a specific emotion, to be impelled to certain kinds of motor activity and to be satisfied with a particular goal.* There are also far more numerous innate patterns of a merely reflex kind, like blinking, swallowing, etc., which offer a relatively mechanical response to a stimulus rather than to a total stimulus situation. The known ergic patterns are set out in the Table below. Section I covers innate patterns intermediate between ergs and reflexes. Section II includes the drives where an appetitive cycle is evident and where some physiological change or visceral 'tension' accompanies certain phases of activity. Two mistakes have been made in earlier writings on these organic drives: first, that of considering the drives to be solely caused by the organic tension, and, secondly, supposing them to be more 'fundamental' (because more material!) than such drives as escape, self-

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of innate drives is tied up with unwillingness to accept any innate mental characters the student should approach this question with the methods and scientific criteria discussed in Chapter III.

assertion, curiosity, for which no somatic association is yet known (and which we classify in Section III—True Ergs—because of their lack of rhythmic periodicity).

TABLE 4
The Principal Ergs and Lesser Innate Patterns of Activity in Man

I. Organic needs:
To seek air; to avoid physical pain, heat, cold; to seek water; to urinate and defecate.

II. Propensities which are organic, viscerogenic, appetitive:
1. (*a*) To seek stimulation, exercise, activity when well rested. (*b*) To play.
2. To avoid stimulation, lie down, sleep and rest when tired.
3. To seek food. This may be functionally connected with storing food, with restless wandering (as in the herbivorous animals) or with hunting readiness (as in carnivorous).
4. To court and mate (sex drive).
5. To feed, protect, and shelter the young, especially in response to appeal behaviour.
6. To reject and avoid noxious substances.

III. Propensities showing no clear organic rhythm:
7. To escape from violent impressions by (*a*) flight; (*b*) 'freezing' to the spot.
8. To defer, obey, abase oneself in the presence of superior performance.
9. To cry aloud and seek help when utterly baffled.
10. To acquire, collect, possess, and defend whatever is found useful or attractive.
11. To explore strange places and things or manipulate and pull to pieces strange objects.
12. To remain in or seek the company of one's fellows. With this go the functionally related tendencies (*a*) to assume, by primitive passive sympathy, the feelings of the group; (*b*) to evoke emotional responses from others; and (*c*) to imitate.
13. To assert oneself, achieve, domineer, lead, display oneself.

14. To present resistance to the expression of any propensity; to attack and destroy such resistance.
15. To laugh and destroy tension in certain tension-provoking situations.
16. (Questionable.) To construct shelter and implements.[1]

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[1] The criteria in this 'Naturalistic' approach by which we can detect the above propensities in man are:

1. Does a similar behaviour pattern run through the order of mammals, to which man belongs, and particularly through the primates? If we accept the fundamental principle that structure and function are closely related it is inconceivable that man, who takes a clear place at the end of the structural series through the mammals and the primates, could lack the basic instinctual functions which they persistently manifest. Here the studies now proceeding on chimpanzees are most valuable.
2. Is the behaviour pattern universal, appearing in man despite great diversity of culture patterns? (A behaviour pattern, such as driving automobiles, may be universal in one culture or one historical epoch, and yet be entirely acquired.)
3. Does it show the typical three-fold pattern, as described by McDougall, of (*a*) a situation which is innately attended to, involuntarily, and recognized (*b*) an emotion of a specific quality (*c*) the release of a course of behaviour striving towards a particular goal, at which action ceases? This is equivalent to what Woodworth called 'permanence of trend', i.e. persistence of the essentials of an activity pattern despite modification of details by environmental learning.
4. Is the accompanying emotion recognizable by its own peculiar, unlearned facial and visceral expression pattern? Darwin first showed the innateness of these expression patterns and psychologists have since studied the limits of cultural modification.
5. Can one detect by introspection, when engaged in a certain course of behaviour, an emotion characteristically accompanying such behaviour? It is conceivable that behaviour could be imitated, but no one could learn an emotional quality.
6. Is the behaviour present at birth? This is a one way proof: What the child is born with must be innate, but what is innate is not merely what he is born with. Neglect of this elementary principle caused Watson to conclude that there are only three innate drives in man, viz.: Fear, of falling and sudden sounds; Anger, at obstruction of movement; and Affection, stimulated by cuddling and hugging.
7. Does environmental training seem relatively powerless when it attempts to deny man the goal object?

The deduction of what propensities are innate in man, from the use of the naturalistic method of overall observation of human behaviour, is a process requiring very wide knowledge and very balanced judgment. Since the latter are rare it is not surprising that in different hands the method has yielded different results. Nor is it impossible to deny totally that innate tendencies exist, as emotionally biased people denied for fifty years the theory of evolution or Freud's arguments for the predominantly sexual roots of neurosis. The evidence in all these cases is very widely dispersed and inferential: it cannot be put into a single sentence or a single experiment.

The second of the above approaches—clinical observation—has proceeded to disclose ultimate motivation by inference from the situations in which neurotic symptoms are created and removed. It proceeds, in addition to inference from symptom formation, to employ the technique of 'reiterated why?', by which we traced subsidiation paths in the last chapter. This modification is called 'free association' and it depends on the subject being trained to let his thoughts wander regardless of logic or moral propriety. Then, like water finding its lowest level, the dynamic process cuts through barriers of logical connectedness and proceeds to the last level of motive—that springing from innate drives.

In addition to such organic needs as food seeking, etc. and the drive to security, which we may identify with the fear-escape drive, Freud and the psycho-analysts eventually recognized two main drives, the sexual libido and the aggressive drive. The ergs of mating, parental protectiveness, gregariousness and perhaps curiosity were considered as derivatives of sexual libido—by maturation or by what we shall study later as 'sublimation'. Similarly, aggression differentiated itself into self-assertion, pugnacity (sadism) and, in combination with libido, into acquisitiveness. The discrepancies between this conclusion and that of the other two methods must now be examined.

A development of the third approach above which offers promise of more definite information about the ergic structure of man than is obtained by any other method is that of 'factor analysing' (*see* Chapter VIII) sets of objectively measured dynamic traits, e.g. attitudes, to see what underlying patterns can be found among them. When the acquired patterns have been separated from the innate ones the latter constitute the ergs. A recent study correlating the strength, in some 250 individuals, of various attitudes, has revealed nine patterns (and others more faintly) which correspond well with those supposed on grounds of biological, clinical and non-statistical

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The application of precise but complex statistical methods—those sketched in the opening chapters and under the third approach below—promises to add to this 'naturalistic' observation approach a core of irrefutable evidence.

naturalistic observation. Thus, for example, the following attitudes clustered to the degree shown by the correlation coefficients, seeming to indicate a parental protective erg as a common source of their variation.

	Coefficient
I want to insure for my children the best education they could have	+ 0.48
I want my parents never to be lacking the necessities of comfortable living	+ 0.44
I want to be able to do more for children who are sick, or poor or uncared for, anywhere in the world	+ 0.42

The same objective procedure of correlating strengths for patterns of covariation yielded the independent pattern.

I want to know more science	+ 0.50
I like to spend time seeing new paintings, etc.	+ 0.44
I should like to spend more time learning about mechanical things, electrical gadgets, etc.	+ 0.33

The common characteristic to the attitude elements in this pattern is almost certainly strength of the drive of curiosity. Similar groupings were found suggesting separate ergs of sex, gregariousness, self-assertion, appeal, fear, play and self-submission.

2. ERGIC MATURATION AND REGRESSION

That a motive derived from an innate drive, in a subsidiation chain, may become so long established and, at the same time, so common among men, as to appear to be itself inherent in hereditary human nature is not surprising. It is possible to point to many such profound sentiments or rooted habits; but it is also true that the application of the criteria above generally suffices to distinguish them from ergs. On the other hand, when an ergic pattern develops some considerable time after birth it may be mistaken for an acquired dynamic trait.

Thus there have been psychologists—apart from the group of extremists denying *all* ergs—who have argued that some of the more subtle, less powerful ergic patterns are in fact 'derived' traits. They have introduced a terminology of primary and secondary drives (ergs and metanergs) and have wished to call gregarious and parental ergs 'secondary drives'. The argument runs that since children satisfy their primary drives, such as food seeking and escape from danger, through seeking people they acquire secondarily a liking for people (gregariousness) or that because maternal behaviour is socially approved the girl seeking primarily social approval comes to have maternal interests.

Dealing with personality we cannot stray too far on issues of general psychology as such, or pause to refute every extravagant view that has ever been put forward on human motive. The evidence has to be balanced from many fields, biological, sociological and physiological, so that, as indicated in our opening discussion on method, the path cannot be made as foolproof as the drawing of conclusions from a single experiment. Our general conclusions remain those expressed in the list of ergs above, but one must recognize that (1) ergs such as gregariousness, curiosity may be supplemented, *in specific situations only*, by metanergic structures expressing secondary gain to other ergs. Indeed there is scarcely any ergic pattern which does not show this fusion and confusion with other drives and even the strongest innate drives, such as sex, may be supplemented by apparent sexual behaviour really directed to other ergic goals[1] (2) that these drives probably do not occur in their finished form in the young person. The final ergic structure may appear by *maturation* from a less differentiated ergic structure of the kind revealed by psycho-analytic methods.

Throughout psychology the task of distinguishing maturation from learning is so difficult as to have led to many mistakes. Outstanding errors of this kind in the history of psychology are the notion that walking is learned by imitation, and the assumption that the more complex interests of the intelligent child were responsible for bringing about, by formal training, his greater growth in intelligence. The slow internal maturing of nervous patterns, dependent on nothing but normal growth, which we call maturation, is now realized to be responsible for the appearance at a certain age of many skills (e.g. walking), abilities (e.g. levels of intelligence) and dynamic patterns (e.g. the sex erg or the pathological manic pattern in the middle age of an individual happening to have such pathological inheritance). Diagram VIII is a very tentative outline, based on the fragmentary evidence yet gathered on this matter, to show how the adult ergic structure of Table 4 may be derived from the relatively undifferentiated sensuous needs of the libido, from primal aggression and from certain fusions of these such as the libido-bound aggression of 'sadism'.

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[1] This occurs most obviously in prostitution. It occurs more subtly, according to Jung, in the case of the father and mother images in sexual dreams. Freud regards this as evidence of the Oedipus complex—the sexualization of the relation to the parent. But Jung must be considered to have justified the view that at least part of the phenomenon is due to the bringing of what are primarily dependence and security motives into the sexual situation.

Whenever maturation occurs there arises necessarily a possibility of regression. Regression may be said to occur also with respect of *learned* skills and acquired dynamic traits (though it is generally sufficient to call this 'forgetting') but in the context of ergic regression we deal only with a falling back from levels once reached by maturation.

The whole question of ergic maturation and regression can best be considered in relation to the sex instinct, in connection with which clinical observations are most numerous. Briefly the psycho-analytic hypothesis is that during its development the sex drive passes through three directions of expression—three different goal objects—and also, but not simultaneously, is focused on three distinct modes of bodily satisfaction—the changing erotic zones.

During its maturation in direction the libido is first narcissistic, then objective-aim-inhibited, then adult-hetero-sexual. In the first year of life the libido is directed to the child's own body and does not extend beyond it. He experiences marked sensuous satisfaction in the bodily processes of suckling, in the warmth of the mother's embrace, in urination and defecation.

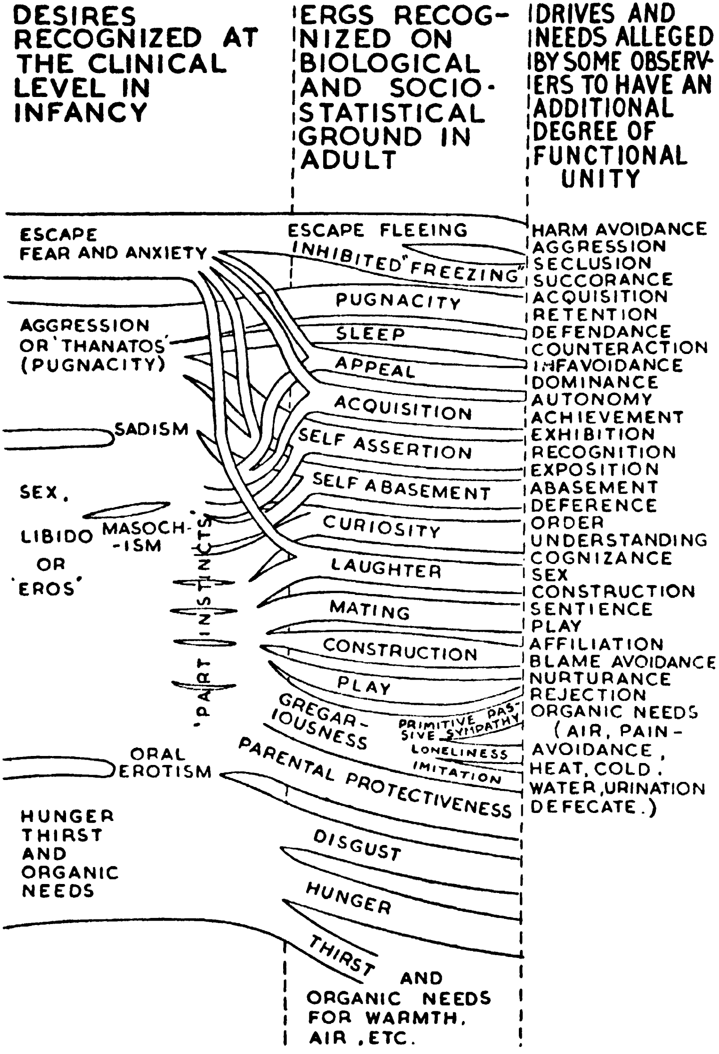

Diagram VIII.—Possible Maturation Paths Reconciling Psychoanalytic with Biological and Socio-Statistical.

Much unnecessary misunderstanding has resulted from Freud's use of the term 'sexual' in a wider sense than that in which it is commonly employed. It is objected that the term 'sensual' would be more appropriate, at the narcissistic stage, than sexual. But the psycho-analyst claims that this infantile sensuality is on the direct line of ascent of sexuality, as shown by the association with sensuality of ideas with a sexual quality. It is the stuff out of which adult sexual emotion is specialized.

In the objective but aim-inhibited stage the libido turns outward to an object, and normally to the mother, who is the giver of affection and good things. This called the Oedipus attachment, again from that Greek myth in which a son, long gone from home, returns and unknowingly marries his own mother, incurring the wrath of the gods for his breaking of the incest taboo. As the child grows older he senses the disapproval of a sensual affection for his mother. He experiences also, at about this time, respect, admiration and imitativeness for his rival, the father, whom he had momentarily hated and feared. Thus the Oedipus attachment is suppressed, and driven out of consciousness.

Consequently from this age (about four to six), a relatively sexless latent period supervenes, until sexuality finally reappears in its normal adult direction at puberty. Even in this period, however, when the child detaches himself from his mother's apron strings and develops friendships for children of his own age, some shaping of libido expression goes on. The libido assumes in part a homosexual direction, expressing itself in sociability and even strong attachments to persons of the same sex, but this last is, normally, temporary.

Thirdly, in the adult, genital sexuality—the last development of the sexual drive—the attraction takes the form known to the biologist, namely, a drive to mating with the opposite sex, with a minimum of narcissistic or homosexual components. These components may show themselves, however, in a brief recapitulation of the whole course of maturation which tends to occur as the sexual latent period gives way to adolescence.

The existence of these stages in development in the goal direction of the sexual propensity is evidenced, according to clinical observations, also by what is seen in regression from adult sexuality. For reasons which are still partly obscure the drive may regress from a level of maturation once attained. The individual may then fail to show a full affectional relation to a person of the opposite sex; he may become homosexual or paranoid; he may show narcissistic components in self-centredness and hypochondria; or he may become completely wrapt in narcissism again in the pathological form of schizophrenia.

Just as the sex drive develops in goal direction so it shows changes in erotic zones. In the auto-erotic stage of the first year the infant gets most pleasure in life from the mouth region (suckling) and is said to be 'oral erotic'. Very soon after, as his attention becomes forced upon the control of excretions, he is said to be urethral or anal erotic. Towards the end of infancy the genital organs are becoming truly the centre of erotic feeling, as can be seen from the incidence of masturbation. This shift is maintained—after the latent period—in the sexual revival of adolescence, but this is not all, for adult sexuality invokes both concentration on the genital erotic zone and the shift of direction to an object outside the self. Partial regressions to earlier erotic zones can often be seen, e.g. the oral erotism shown in kissing or in sucking at cigarettes.

With this brief discussion of ergic (as opposed to total, personalistic) maturation and regression we shall be in a position to understand the roles of these changes in the total adjustment process.

3. THE PSYCHO-ANALYTIC ACCOUNT OF DEVELOPMENT

The transformations which occur in the innate drives in the course of personality development are, from the clinician's viewpoint (*a*) maturations in ergic goals and response mechanisms and (*b*) the growth of new (metanergic) structures—the ego and the super-ego—which are formed out of the basic drives and which then turn about and control those remaining drives—the id—as we have seen in the previous chapter.

This development of the relations and structures constituted by ego, id and super-ego now requires our closer attention. As indicated in the above section, the second stage of maturation of the sex erg is one in which affection and interest go out to an object beyond the self—normally the mother. Because of this love and attachment to the mother—and later to the father—the child may eventually identify himself with the parents and 'introject' into himself the previously external standards of behaviour, the virtues and moral prohibitions for which the loved parents stand. He then says to himself, "John, you *must not*" and feels guilty, where previously the parent said,'You must not' and made him afraid of loss of affection. This is the beginning of the super-ego.

Deep in most cultures, especially their religious aspects, is an opposition to free sexual expression and especially to incest. Because the father tends more than the mother to represent the severe aspects of the cultural prohibitions and also because of the family situation in which husband and son are potentially rivals for the mother's affection, it is typically the father who initially opposes the sexual elements in the son's relation to the mother. This begins the movement towards repression which results in substantial parts of the first object libido attachment being driven into the unconscious as the 'Oepidus complex'. But the mother—at least the normal mother, with normal perception and moral standards—also herself inhibits the sexual elements of the attraction. This duality in what the mother stands for—a sensuous creature and a cold goddess—may show itself in later attitudes of the adult male, especially if he is neurotic, as we shall see in Chapter VI. It has also been shown to have an interesting outcrop in cultural patterns, e.g. in the attempt to make a sharper division between 'good' and 'bad' women than between good and bad men.

It has been said that the super-ego is built on the gravestone of the Oedipus complex. This calls attention to the fact that the development of the super-ego can take place only where there has first been a strong development of object libido (initially to the mother, then to both parents) and the further fact that the first task of the super-ego is the burial of the Oedipus complex. What is at first difficult to account for is the source of power for so radical an undertaking. This power to repress powerful desires is accounted for only when we remember that many distinct ergs are allied in the task. In the first place there is affection and admiration for the mother and father, which favours the process of identification and 'introjection', i.e. the incorporation of the ways, standards, ambitions, etc. of the loved object into the self. In the second there is respect and fear of punishment. The mechanism of introjection may operate from fear as well as from love, as when a child, originally frightened by the explosion of a gun, may master his fear by pretending he is the gun and by going around shouting 'Bang! bang!'

One of the most powerful motives of all in inducing the child to accept and imitate the ergic denials enjoined by the parents is the anxiety from fear of the loss of protection and security normally offered by the parents. Next we must recognize the role in conscience formation of the gregarious erg, either in its matured form of 'desire to be one with the group' or in the infantile undifferentiated form where the parent is the equivalent of the group. In the complex, secondary emotion of 'guilt' the frustration of the gregarious need, experienced as 'loneliness', is as powerful an ingredient as fear.[1] This obviously connects with the fact that exclusion from the group is one of the most customary punishments used by groups to enforce that conformity to standards which is characteristic of the super-ego demands.[2] This may operate long before exclusion turns to real fear-provoking threats to actual security, either from group aggression or from being left in danger of starvation, etc. Lastly the role in super-ego formation, of the self-assertive drive, and even of pugnacity, must be illustrated. The immature self-assertive drive, according to psycho-analysts, is 'secondary' narcism, a part of the narcistic[3] libido which aims at the success

[1] See the factor pattern discovered for the factor of *Desurgency*, both as ratings and as introspections. (Chapter I (2).)

[2] Martyrs, in their defiance of the opinion of the crowd at the behest of their consciences, may seem to deny this motivation. We must remember, however, that they called into existence by imagination a congregation—perhaps of saints in heaven—who approved of their behaviour and formed the group basis for their consciences.

[3] I have followed here the currently developing practice of shortening narcissism and narcissistic to narcism and narcistic respectively.

and perfection of the idealized self. When the self-assertive drive takes the aim of morally perfecting the self it expresses itself through and supports the structure of the super-ego, inhibiting the id and guiding the ego in the service of this goal. And when the prohibitions of society beget frustration and pugnacity the latter destructive drive can be, and very frequently is, turned upon the self, by way of the super-ego. This inward aggression occurs, in other words, because the outward expression of aggression, begotten by punishment of some other drive, is usually again punished. Thus in the more tyrannical, exacting super-ego action we can usually trace a good deal of inwardly directed destructive drive. (A trend sometimes described as 'nemesism'.)

The relative power of these different ergs in the super-ego functioning cannot be calculated from present data. A feature which puzzled psychotherapists, and which has been very lucidly discussed by Flugel in his classical study of the super-ego (Chapter IX (5)) is the finding that the super-ego is sometimes more exacting and harsh when the child has affectionate parents than when he has been brought up less affectionately. This would seem to indicate that love, determining the initial identification, is one of the most powerful pillars in super-ego formation.[1] Indeed, as is well known, and evident in our discussion of delinquency (Chapter IX) the child will not accept prohibitions with any depth from a person he does not love.

The original psycho-analytic account of the super-ego as entirely post-Oedipal has had to be revised somewhat in the light of the discovery of guilt reactions at an extremely early age, in the second and first year of life. It has been seriously maintained by some analysts that some core of the super-ego is innate. This is conceivable, if selection has operated on men (having some common prohibitions of their culture patterns) for tens of thousands of years—and incest may be such a prohibition. The super-ego structure, however, arises from the reward of so many motives—affection, fear (escape), gregariousness and self-assertion, for example—that some of its manifestations could be conditioned very early.

[1] However, Symonds (6) takes the opposite standpoint here.

4. THE INTEGRATION OF STRUCTURES AND FUNCTIONS

In pursuing the personality structure analysis further, we have next to bring together a number of seemingly disparate fields of observation which are sometimes left unrelated.

A systematic outline of the distortions of normal dynamic structure and functioning which constitute 'neurosis' will be postponed until Chapter VII, but our present study needs to take *some* note of the developmental disturbances which can occur to a high degree in children and a lesser degree in adults, notably the less integrated the total psychic situation is an irresolvable three-cornered conflict between ego, id, and super-ego. In the happily adjusted individual the ego is the most powerful; in the insane, the psychopathic or the person unable or unwilling to control himself the id is most powerful; in the saint, the anxiety hysteric and the melancholiac, the super-ego is most powerful, just as, in the delinquent, it is conspicuously lacking.

Over-development of one implies some tendency to under-development of the complementary structures. A powerful super-ego, for example, lessens the development of the ego and restricts the id. A person brought up with exacting super-ego standards may thus show excellent control of the id and its impulses but also a certain over-cautiousness, lack of spontaneity, inability to cope with external difficulties and a tendency to over-scrupulous, obsessional attention to detail which arise from defective ego development. On the other hand the 'realist', who always acts rationally to satisfy his own desires in an alert, practical fashion, has an ego powerful enough to control his own conscience too, and is generally not conspicuous for altruism.

Usually an overstrong super-ego is associated with a good early relation to the parent, together with certain obsessiona moral standards on the part of the parent and a rather long continued dependence of the child upon the parent or parent substitute. Similarly, delinquency is associated with defective early affectional relations to the parent, followed by mora standards being (*a*) lacking or (*b*) overstrict, so that, with defective affection, they are totally rejected instead of introjected, or (*c*) inconsistent standards of discipline between parents, parents and school, etc., or the same parent in different moods, all of which vacillations damage the super-ego structure in its development.

The development of the super-ego is also somewhat different in the two sexes, as has been noted both by clinicians and psychometrists. The former are inclined to take the psycho-analytic position that the difference is largely due to the girl child having a different, more confused development at the Oedipus stage, making a poorer foundation for super-ego development. Women seem less influenced by abstract standards of right and wrong, and therefore less inclined to regard them unless some known person is affected. The super-ego is less harsh and aggressive and less inclined to lead to positive action. Disparity of male and female genius is nowhere greater than in the history of religion.

The conflict of super-ego and id is usually through their often diametrically opposed simultaneous demands upon the ego; but, as we shall see in neurosis, the super-ego may directly persecute the id at the unconscious level for immoral desires and phantasies of which the ego is not aware. The early development of the super-ego, concerned with the toilet habits of the first two years, with the sadistic play and brutal assaults of infants, with learning not to play with or exhibit the sex organs, etc., is generally hidden in the unconscious later years. That is to say, though one feels ashamed of certain actions one is not alway sure why. Also the removal of these shame and guilt reactions is beyond the power of the rational, conscious mind, because of the repressed connections. When these shames are excessive or distorted so as to be out of line with the culture pattern they make for maladjustment.

The ideal integration of structures in a system with the minimum of conflict is that in which ego and super-ego become consistent, which involves a conscious realization and acceptance of reasons for prohibitions and a lack of panic in face of the grotesquely amoral demands of the id. Incidentally, though 'progressive' education aids integration by 'reasoning' when prohibiting, and by avoiding the emotional shocks occasioned by expressions of adult horror of the id, it often wrongly assumes that reasons can be given for all prohibitions. Social psychology at present often knows only that the given culture pattern with its 'arbitrary' moral standards has been arrived at by the 'law of effect' acting on social trial and error, i.e. by the discovery that the system 'works'. The *reasons* for the inhibition even of sex are only now becoming dimly apparent.

As indicated above, that consciously integrated structure of ego and super-ego is probably what was first described, by McDougall (4), as the *self-regarding sentiment*. For among the ideational objects to which sentiments can be built up is the self concept itself. As William James pointed out this self-concept emerges in the earliest years. The infant a few months old has only succeeded in distinguishing his own body, as a sense datum, from the other things he sees and feels. If he acquires habits of 'good' rather than 'bad' behaviour, it is a blind acquisition through reward following trial and error, but he cannot be said to implement his impulses by will or restrain them by conscience. With words, and after the age of about 24 months, he begins to have an idea of himself. He knows he is called Harry; that he is much loved by his mother and rather disliked by his bigger brother Jack; that he has certain excellencies and deficiencies. He reacts to praise and blame of his name and experiences reward to the drives of self-assertion, gregariousness, etc., in so far as he is able to fit his conduct to this dawning ego image.

The typical forces, their modes of action and their product, in regard to the shaping of this self concept have not yet been experimentally investigated. We know that at first the identifications are with immediate members of the family, principally father and mother, and that the personality can be shown, by correlation, always to owe more to these earlier models than to later ones. There is evidence also that as the orbit of his experience widens the child has fits of admiration, affection and respect for characters from books and plays, and slight but measurable changes in the acquisition of virtues of courage, conscientiousness, independence, skill and generosity can be traced to such identifications. There is a whole world of study for the psychologist in the adjustments which are gradually made between the admired patterns and the constitutional limitations of the individual—adjustments which normally lead to increasing selection of ego ideal patterns so adapted to constitution that sufficiently rewarding success is achieved.[1]

This self-regarding sentiment ultimately becomes the organizing centre of all sentiments, a keystone in the arch of sentiments assuring their stability and integration in a subsidiation system. A course of action advocated by any one sentiment has to be checked against its consequences to the satisfaction of other sentiments and particularly to those moral sentiments which arise from the super-ego. It was McDougall's contention that what we call will power is this self-regarding sentiment in operation. It brings the weight of, as it were, a committee of sentiments and ergs against the unruly action of any one ergic impulse or wayward sentiment.

The individual with a well-balanced self-regarding sentiment is not strong willed in the false sense of being self-assertive and aggressive but in the truer sense of persisting in a course of action, once it has been accepted by the total personality, in spite of temptations, fatigue, obstacles and other appeals to the immediate satisfaction of individual drives. In proof of this we note the flabbiness of will in the 'beachcomber', exiled through some momentary action ruining his reputation and self-regard, or in the regression of behaviour to lower levels which sometimes occurs in children whose self-regard has suffered a severe blow, often through nothing they have done themselves but through some disgrace of the family with which they identify themselves. Again history yields many examples of men with powerful sentiments, to art, to a lover and even to religion, who have lacked will outside this one realm, because the self-regarding sentiment lacked integration, and who have been proportionately lacking in conscience and reliability.

The main dynamic structure of personality as here described—the id, the super-ego and the ego, with the conscious super-ego blending with the ego into an integrated self-regarding sentiment—has had its scientific foundation, up till recent years, in clinical varieties of observation alone. The development of the far more exact approach through factor analyses of measured behaviour manifestations, particularly by P-technique, promises to place the analysis of dynamic structure on an entirely new level of objectivity and precision.

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[1] As L. Pearsall Smith has neatly said: 'Don't laugh at a youth for his affectations; he is only trying on one face after another to find his own.'

If the super-ego has any title to being a functional unity it should show itself in correlated behaviour. Similarly the id, and the ego or the ego's development into the self-regarding sentiment should produce a pattern in measured individual differences. An inspection of the personality factors found empirically by factor analysis as described in Chapter VIII will show that patterns of this kind do in fact exist. What is called descriptively in Chapter VIII Emotional Integration or Character Stability affects very much those items of behaviour ascribed to the self-regarding sentiment, namely, conscientiousness, dependability, stability, freedom from moods and persistence in test situations. The factor of Dominance, with its confident self-assertion and wilfulness, suggests the well-developed ego, at least that earlier part of it which does not become integrated with the self-regarding sentiment. Finally the factor F, Surgency-Desurgency, resembles very much deficiency and excess of super-ego, especially of that unconscious part[1] of the super-ego which is independent of the self-regarding sentiment. For the individual with extreme endowment here is worried, meditative, introspective, depressed and unable to relax.

This work is too recent for us to venture on more precise attempts at identification. For example, it is uncertain whether the id is to be represented by an independent factor or simply by the obverse of the self-regarding sentiment factor. (Finer factor analytic work already indicates the existence of two distinct similar factors here; one perhaps representing the vigour of the id, the other the effectiveness or ineffectiveness of the inhibition of the id exercised by the self-regarding sentiment). Again it is possible that some aspects of the structure will appear as second order factors through correlations among the first order factors. As one would expect from the hypothesis, the factors for ego and self-regarding sentiment are positively correlated. The third factor, surgency-desurgency (F factor), on the other hand, has the desurgent (super-ego) pole negatively correlated with ego strength (E factor) but slightly positively with the self-regarding sentiment (C and G factors), a result which one would also expect from clinical findings.

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[1] This identification was suggested earlier by the present writer (Chapter I (2)) and independently by Eysenck's in his later publication (Chapter II (3)).

5. SUMMARY OF STRUCTURAL RELATIONS

(1) Understanding dynamic development turns in the first place on the correctness of our conception of what is innately given. Clinical and naturalistic observation, as well as the first indications of the new factorial methods, point to some fifteen to twenty ergs in adult men, in addition to more fragmentary innate responses, and numerous simple reflexes. Those innate response patterns falling within the general ergic pattern can be divided into appetitive (organic, viscerogenic, cyclical) and non-appetitive (non-rhythmic, non-visceral) ergs. Attempts to derive the latter as 'secondary drives', produced by environmental reward of the former, are scientifically baseless.

(2) The particular expressions of ergic behaviour are partly shaped by learning, but also by innately determined maturation. The refined clinical analyses of Freud indicate, but do not yet entirely prove, that the above adult ergs are matured from a less differentiated infantile sensuous libido, together with infantile forms of food seeking, aggression and escape (fear). These have various 'part instinct' extensions, adapted to various ages, which tend to crop up at those ages and to be retracted in the later course of maturation. There are also various transient *fusions* of drives which seem to depend on maturation stage rather than learning.

(3) Out of the id, constituted by these drives, are fashioned, by environmental impact, the ego and super-ego structures. The main super-ego structure succeeds the Oedipus relation, by a process of identification and introjection of the prohibiting but beloved parent. However, this structure is not built on libido alone but on other ergs, notably fear, self-assertion and gregariousness.

(4) Normally, in a reasonably well-integrated culture, the ego and the conscious super-ego become integrated in a self-regarding sentiment. The development of the self-regarding sentiment can be traced from the time the infant is able to develop sentiments to abstract objects and to entertain an abstract idea of himself. The three-cornered conflict of ego, id and super-ego thus becomes reduced to a conflict mainly between id and self-regarding sentiments, but some lack of integration, and separateness of structure may still persist between the self-sentiment and the unconscious super-ego and between the latter and the id.

(5) The effectiveness of the above integration of sentiments within the self-regarding sentiment, and the latter's developed relation to id and unconscious super-ego, probably determines what we operationally measure as 'strength of will', i.e. the ability stably to choose a course of behaviour and stick to it in spite of temptations and obstacles.

(6) Psycho-metric proof of the existence of these clinically deduced structures is available in the data discussed in Chapter VII. Probably the self-regarding sentiment is evidenced by the General Emotional Maturity or Character factor; the ego by the Dominance factor and the super-ego by Surgency-Desurgency. Further work may soon turn these speculative identifications into far more precise concepts than the original clinical adumbrations and make a calculus of dynamic personality structure possible.

MORE ADVANCED READING

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CHAPTER V

PSYCHO-DYNAMICS III
THE PROCESS OF ADJUSTMENT OR MALADJUSTMENT

1. THE FIRST THREE (EXTERNAL) ADAPTATION-ADJUSTMENT CROSSROADS

POSSESSED of sufficient idea of the ergic nature of man, and the metanergic structures of ego, super-ego, self-sentiment and the general sentiments which derive from ergs, the student is now ready to examine more closely the *processes* of derivation. Our purpose is to discover the major principles governing this modification process, i.e. the theory of learning and, in so doing, we shall study the natural history of external and internal mental conflict.

Usually the clinical psychologist *starts* his study with observations of internal conflict in the neurotics who constitute his 'population'. But considering normals as well as neurotics, we must begin further back, asking whether conflict is essential in normal sociobiological adjustment and inquiring if conflict is the sole source of modification of ergic patterns. On logical grounds one can see that two basic conditions are necessary for the rise of new mental structure:

(1) Some inherent quality of plasticity in the nervous system. The innately preferred and functioning ergic pattern must not be absolutely rigid, as it is, for all practical purposes, in lower organisms and insects. As far as we yet know this plasticity is in turn determined by two independent factors (*a*) *intelligence*—the possession of enough neural connections to make alternative paths possible and perceivable, and (*b*) low *disposition rigidity*, some as yet (Chapter VII (1) (3)) incompletely understood physiological condition which makes it

possible for perceived, preferred ways of acting actually to supplant older, established ones. Beyond mentioning these conditions of plasticity nothing further need be said here, for they are conditions which can be taken for granted as existing adequately in all normal human beings.

(2) Failure of satisfaction from existing behaviour patterns. The 'education of the emotions' like the education of skills, comes about through some responses failing to produce the desired effect and other, newer, variations being successful. New dynamic traits and habits begin, therefore, with 'conflict' with the external world (if 'conflict' may include deprivation). They often stabilize themselves, however, only after the external conflict has turned to internal conflict; for, as we shall demonstrate, all internal conflict begins with external frustration though not all external frustration leads to internal conflict. These basic conditions may be illustrated by the dynamic learning in the case of a sociable man, with a large circle of friends, who moves to a remote city. His gregariousness suffers deprivation: the trait is frustrated in its expression. But plasticity exists: he is intelligent enough to perceive that his loneliness may be assuaged by joining the local church, and though he has not previously been strongly interested in religion he has sufficient freedom from disposition rigidity for this course of action to become increasingly satisfying to him. He acquires social interests with religious values: his personality has developed a new trait.

Dynamic psychology at present suffers from a chaos of terms and formulations (alternative meanings, for example, for frustration, conflict, suppression, etc.). The more exact meanings behind popular usage will be developed here on the basis of a new formulation of dynamic learning in terms of 'adaptation-adjustment paths and crossroads'. This aims to produce simplification by presenting a systematization of the normal sequence of events in the adjustment process.

The whole process of adaptation always begins with 'a man in a quandary', or, in more general terms, *an organism in which the normal, innate stimuli to ergic action are operating, but no outlet for the resulting excitation has appeared.* This we shall call *the first adaptation crossroads:* the first situation at which alternate responses, fraught with consequence for future adjustment, can be made. The organism with a basic drive seeking expression in this way has four possible fates. We shall call these 'sequels' *a*1, *a*2, *a*3 and *a*4, since *a* will be the symbol for the first crossroads. They are represented in Diagram IX as follows:

- *a*1. Satisfaction of the need concerned.
- *a*2. Deprivation, in the sense of continued non-satisfaction through the absence of the goal object.
- *a*3. Suppression of the first need through a second more powerful and urgent drive being stimulated into action, denying time and opportunity to the first.
- *a*4. Frustration by a barrier, when the path to satisfaction is otherwise evident.

These four dynamic adjustment paths are represented by the four arrows at the first adaptation crossroads in Diagram IX.

Our aim is now to follow the course of events systematically from crossroads to crossroads, always neglecting those paths which are of no further interest because they lead to no further problem. It is the paths that are unsatisfactory to the organism which lead to the problems which the psychologist needs to study. Thus we ignore the paths leading to (1) satisfaction; (2) continued deprivation without obstruction; and (3) temporary suppression by a supplanting drive, and turn to the second, new crossroads presented in the path encountering an obstruction.

2. INNATE AND ACQUIRED RESPONSE PATTERNS TO HINDRANCE

About the situation now to be considered—that of frustration—a literature of more volume than analytical skill has recently accumulated. Consequently it may be necessary to forewarn the student unused to the fashions and excesses of pedantry against overestimating the importance of this crossroads in the total course of adaptation processes and against adopting the simple law that frustration begets aggression.

Without polysyllabic terms people have always known that a

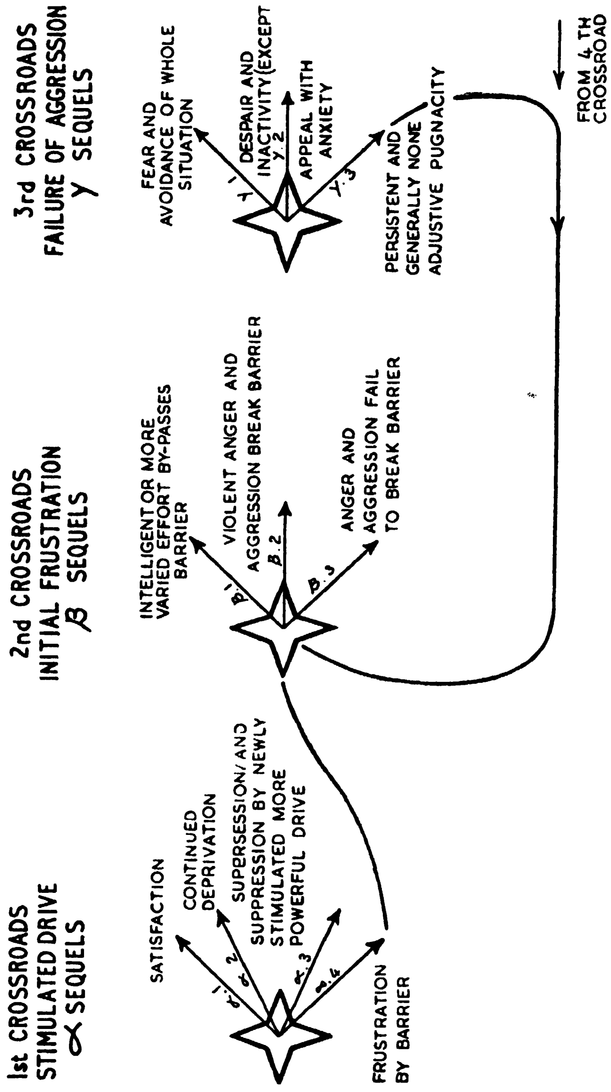
1st CROSSROADS
STIMULATED DRIVE
α SEQUELS
SATISFACTION
CONTINUED DEPRIVATION
SUPERSESSION/AND SUPPRESSION BY NEWLY STIMULATED MORE POWERFUL DRIVE
FRUSTRATION BY BARRIER
α.1
α.2
α.3
α.4
2nd CROSSROADS
INITIAL FRUSTRATION
β SEQUELS
INTELLIGENT OR MORE VARIED EFFORT BY-PASSES BARRIER
VIOLENT ANGER AND AGGRESSION BREAK BARRIER
ANGER AND AGGRESSION FAIL TO BREAK BARRIER
β.1
β.2
β.3
3rd CROSSROADS
FAILURE OF AGGRESSION
γ SEQUELS
FEAR AND AVOIDANCE OF WHOLE SITUATION
DESPAIR AND INACTIVITY(EXCEPT
APPEAL WITH ANXIETY
PERSISTENT AND GENERALLY NONE ADJUSTIVE PUGNACITY
γ.1
γ.2
γ.3
FROM 4 TH CROSSROAD

Diagram IX.—A System of Adaptation-Adjustment Analysis: The First Three Dynamic Crossroads, covering External Adaptation.

man crossed tends to get angry.[1] That pugnacity is an innate propensity or erg, having the emotion of rage and the goal of destroying the obstruction, was first clearly pointed out by McDougall, who recognized that the stimulus situation for this erg is the thwarting of *any other erg in process of gaining satisfaction.* But he did not argue that this is the sole reaction to frustration. Indeed not one but five[2] possible psychological sequels to being balked have to be considered, according to the circumstances conditioning the frustration. The initial reactions to frustration we shall refer to as the β paths—the alternative reactions possible at the second dynamic crossroads.

In the first place, if the balking of the goal-seeking activity is not too sudden, relative to the pressure of activity, the organism simply heightens its efforts and *becomes more varied in its trial and error responses.* This may be called the law of behaviour dispersion with deprivation. The dispersion may occur either at the physical or at the imaginal level, and the latter may lead to an insightful solution. This increase of variety of memory resources tried upon the situation is too well known to need illustration and it suffices alone, very often, to produce either an insightful or a sub-conscious solution in the form of a path around the obstacle.

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[1] The so-called 'frustration-aggression hypothesis' has added nothing to this truth except (1) many syllables, (2) the error that all thwarting begets anger, (3) the confusion that arises from using the ambiguous term aggression. This term, precise enough in the political sphere, covers psychologically various mixtures of self-assertion, energy, pugnacity, and sadism. In American particularly the term is loose; for example, an 'aggressive teacher' is not one who is cruel to his students, but one who is energetic and lively.

[2] There are more if we take account also of *relative frustration of different dynamic structures within the personality.* The first additional case distinguishes frustration of an ergic drive from frustration of an ergic drive plus frustration of the ego. Thus a girl may deny a man a kiss tactfully, which is erg frustrating, or may do so in a way which is ego frustrating (wounding of self-regard), the degree, quality and persistence of aggression being quite different in the two cases. Secondly, frustration may act differentially on the super-ego with respect to other personality structures. For example, a dipsomaniac who knows that he ought not to drink and has a strong sense of guilt about it will not react in the same way to your knocking his glass out of his hand as would another. He may be overcome with gratitude. Similarly, in the days before anaesthesia men were glad to be held down while a tooth was extracted. In all these cases the sequel is complicated because the frustration of one dynamic trait automatically produces a marked satisfaction of another. The reactions within the frustrated part-systems may be any one of the five basic ones discussed above, thus producing some ten varieties of frustration sequel additional to the five discussed in the text.

If this, the first of the β paths, fails, the second is normally an outbreak of rage, which by sheer violence may break the obstacle. But if the situation is such that this also fails then we have to consider the remaining three paths or sequels which have been called γ paths because they really arise at a third crossroads—that arising at the unbreakable barrier—as indicated in the Diagram XV.

The third reaction to frustration, the first of the γ sequels occurring when the barrier is unbreakable, is despair, with its specific emotional quality of depression, its arrest of gross activity, its weeping or other appeal behaviour and its goal of exciting sympathetic help. This tends to develop also within the fourth reaction. The fourth reaction—$\gamma \cdot 2$—is conditioned by the fact that many barriers, especially human or living ones—and even some inanimate ones!—themselves react violently when attacked. Consequently, in an instant, the erg of pugnacity can be replaced by an erg of fear (escape), so that, at least in all frustration situations of which the organism has prior experience—the great majority—the immediately reaction to frustration *may* come to be fear. Because of the closeness of the two types of frustration situation which evoke them, the $\gamma \cdot 1$ and $\gamma \cdot 2$ reactions, namely, fear and despair, may readily become fused, as is shown empirically in the pattern of desurgency (Chapter VIII).

The fifth and last of the possible frustration sequels is $\gamma \cdot 3$—persistent, non-adjustive attack and hostility, oscillating in an almost appetitive cycle. As Hebb has pointed out very clearly in chimpanzees, the anger pattern, as in man, assumes two relatively clearly differentiated forms—violent rage and smouldering, sulking hostility. The latter, as far as present observations suggest, is the reaction now being considered and is specifically related to a kind of persistent non-adjustive situation, as indicated in the lowest path in Diagram IX.

Another of the unsolved—and frequently unposed—questions about the sequels of frustration is as follows. Does the aggression evoked by an unbreakable barrier, as in the last discussed reaction, persist, if unexpressed, by some degree of 'functional autonomy' or 'disposition rigidity' (Chapter II) after the desire which was frustrated has been satisfied in other ways, or at sublimated levels? Certainly many observations on personality suggest that at least satisfaction at highly sublimated levels leaves a permanent residue of pugnacity, which, however, may also express itself in sublimated fashions, to which the term aggression—meaning a modified pugnacity—could very appropriately be given.

3. THE DEVELOPMENT OF ANXIETY AND INTERNAL CONFLICT

Normally the individual may be expected to repeat the reactions and sequences in the second and third crossroads if a solution is not found; and repetition—as at $\gamma\cdot3$—may result in a break-through at any one of the possible solution points. But if no break-through occurs, and if the individual does not follow the $\gamma\cdot1$ reaction of escaping from the whole situation, then he is compelled, as indicated at $\gamma\cdot2$, to remain in the stimulating situation (in a state of despair) and to renounce the drive.

The fourth crossroads, which this sequel opens up, is therefore concerned only with the possible ways of giving up the drive. These can appear only through the intervention of the more powerful conflicting drives at length brought into action through the situation created by the first drive. Among the latter, of course, are the organized drives of the ego and super-ego and it is at this crossroads that the theories of internal conflict, personality structure and neurosis formation really converge. Diagram IX covering the *external* adjustments of the first three crossroads, now runs into Diagram X dealing systematically with *internal* adjustments, but all six crossroads could, of course, be represented as a single complete sequence of possible adjustments.

Obviously the principal new drive which is responsible for the renunciation or modification of the originally active drive is fear—fear aroused by attacking the barrier. Parenthetically one may point out that this is not the *only* point in the dynamic history at which ergic modification is enforced. It can occur at the first crossroads, where the first drive is simply suppressed to give greater satisfaction to some other drive. In that case also we may speak of 'fear'—fear that some greater satisfaction may be lost if satisfaction of the first drive is attempted. But this is not the same as primary fear of a retaliating barrier. True, one may say, again, that the need to escape plays the part, in the fourth crossroads, that the alternative drive does in the fourth. In both the first drive is given up under pressure of a greater one; but the specific nature of escape, differing from that of all other drives, justifies considering the situation at the fourth crossroads as different from that at the first. (Indeed the supersession by another drive more strongly stimulated can occur at any crossroads and the δ.3 path could be tacked on to all crossroads). The principal specific, qualitative difference is that fear seems to evoke repression far more readily than does any other drive.

Ergic modification can occur also at the second crossroads, in so far as circumventing the barrier by new or intelligent responses *may* also produce a necessary modification in the form and degree of satisfaction of the drive. However, the modification we are now considering at the barrier,and which is probably the most common kind in both man and animals, is induced essentially by fear. That is to say, the initial drive, as well as the aggression which followed its frustration, comes into conflict with fear newly aroused by the primordial ergic stimulus of the violently retaliating barrier, or by presentation of some stimulus which, through memory (perhaps conditioning), has become representative of the innate fear-evoking primordial stimulus.

Thus, for example, a rat can be taught to face a pellet of food without eating it, by means of a painful electric shock inflicted every time it tries to pass a barrier to the food. In time the sound of a buzzer alone, which once occurred with the shock, is sufficient symbol to arouse the escape erg, the satisfaction of which means more to the organism than the satisfaction of hunger. As Mowrer has shown, rats in these circumstances develop a 'reaction formation' against food, showing fear and avoidance when it is presented.

In man, owing to the greater plasticity and power of integration, the metanergic structure has become much more complex and the drives opposing the 'drive-to-be suppressed' consist of many other drives additional to fear, including in fact all those ergs functionally knit in the ego and the super-ego. Suppression by a single stronger drive frequently occurs in man, either before frustration ($\alpha \cdot 4$) or after ($\gamma \cdot 3$) but these conflicts do not constitute the major, persistent adaptation and conflict situations which the psychologist and psychiatrist are most frequently called upon to study.

The step from crossroads 3 to crossroads 4 is especially important in that the whole problem of anxiety arises there. Introspectively and by behaviour pattern we can distinguish several varieties of fear, but the two most obvious are the *fright* or terror inspired by a sudden alarming situation and the pervasive *anxiety*, which is less intense but more prolonged and which arises sometimes from anticipation of a real danger or loss and sometimes for no very apparent reason, especially in neurotics.

It behoves us to clarify, in the framework of our dynamic analysis, what this anxiety really is. Early in the clinical study of anxiety hysteria—the neurosis in which the individual complains of a 'nameless dread' or 'free floating anxiety' which may attach itself to the most unlikely objects—it was found that the condition commonly associated itself with the arousal of sexual drive followed by suppression and repression. At first the explanation offered was that libido had somehow become 'transformed' into anxiety. Later it was realized that the anxiety arose from unconscious connections anticipating that punishment which had previously met overt sexual expression. Moreover, the same anxiety was shown to arise from repressed sadism or pugnacity.

From this initial discovery we have progressed to the recognition of anxiety as a signal of *past punishment* of sex, pugnacity or any drive whatever which has reached the impasse situation constituted by the first γ path at the third crossroads.

Quite frequently we shall find that the punishment of a drive is bound up also with punishment of the aggression which *may* and often does follow. And in these cases the anxiety is generally more severe because, at least in authoritarian education, the punishment of pugnacity and revolt tends to be more severe than that of the originally forbidden drive.

Psychiatrically it has become customary to speak of anxiety as the 'cause' of many clinically observed dynamic readjustments. For example, it is said to be the cause of repression and of other ego defences (with which we shall soon deal), of reactions against the super-ego, of symptoms, particularly obsessional and expiatory symptoms, of regression and of psychosomatic changes. It would be more correct to say that the punishment, the symbol of the punishment, or re-activated memories of the punishing incident, are the cause; but to the experienced reader this is implied in discussions on anxiety. One must remember too that anxiety may itself come to be a 'conditioned' symbol of desire and so to some extent set up a vicious circle, in which anxiety stimulates desire and desire anxiety.

To realize more fully the difference between anxiety and fear one must consider further aspects of the anxiety provocation situation. Those who recall the splash of psycho-analysis in the popular press will remember the surprise at Freud's purely empirical dictum that all neurosis and neurotic anxiety arise from sex. Fear, in the traumatic situations of war, it was asserted, in opposition to Freud, could surely produce anxieties in its own right. It is true that war neuroses could be found due to protracted fear of real dangers, but these cleared up at once when the soldier was given respite. On the other hand the examination of most intractable war neuroses actually revealed a sex conflict in which the traumatic war situation was incidental. The important deduction from this and other aspects of neurosis is that fear, to produce its neurotic effects, must rest upon (i.e. be activated by) an appetitive erg. Escape itself is not appetitive: it drives only when a danger situation appears. An appetitive drive, like hunger, thirst or sex, can be active, on the other hand, without external stimulation. It generates phantasies or unconscious phantasies of satisfaction, which reactivate memories of earlier punishment of the drive and thus create continuous anxiety, through a functioning of the fear drive proportionate in strength to the strength of the appetite.

That sex, rather than hunger, maternal feeling, thirst, fatigue or other appetitive, viscerogenic ergs, is the prime cause of neurosis is merely an accident of our culture pattern, which assigns no disgrace to the latter. Whether the continuous stimulation of a non-appetitive erg, e.g. fear, curiosity, gregariousness, with repression of the resultant impulses, would produce neurosis, has never been experimentally verified, but the above mentioned observations of the rarer kinds of neurosis in the recent war, in men continuously subjected to imminent danger under the urge of duty, which cleared up completely when the strain was removed, suggests that the nagging continuity of the appetitive type conflict alone differentiates it from those which could be based on other drives.

Anxiety employs the same bodily mechanisms as fear. It shows itself in tremor, jumpiness, sweating, coldness of extremities, abnormality of heart-beat and breathing, excessiveness of adrenal secretion with resulting congestion of the alimentary tract, etc. It differs in quality first because it is maintained at a lower level and secondly because it arises from internal cues, often fragmentary and obscure, and secondarily reactivated by appetite, as shown above, instead of from the full-blooded, external situation. Lastly it differs because it has the quality of anticipation. That is to say it is a long circuited response, involving learning and memory, and occurring sometimes as a reaction to a symbol of a symbol of a symbol. This uncertainty of meaning and imminence may be responsible for some of the peculiar characters of anxiety. There is reason to suspect a second source of anxiety, additional to fear of anticipated punishment repetitions, namely fear of loss of control by the self. This can be reduced to fear of the unknown, which latter is a primarily biological stimulus for fear.

These relations at the third adaptation crossroads need to be thoroughly understood if one is to master the prediction of general dynamic adjustment and especially neurosis. They may be summarized by saying that anxiety is the first offspring of internal conflict and the father of all defence mechanisms and symptom formations.

4. THE FOURTH (INTERNAL) CROSSROADS AND THE δ SEQUELS: SUPPRESSSION, SUBLIMATION AND REPRESSION

Anxiety is not, however, the necessary or the only offspring of internal conflict. It does not occur at α·4, which is a form of internal conflict, and it need not appear more than temporarily in the fourth crossroads. Individuals tolerate conflict and anxiety with very different degrees of success, depending upon the goodness of their existing personality integration (soundness of ego structure) and the manner in which they go about settling the conflict. Factors favouring anxiety, such as, 'neurotic hesitation', etc., we shall look at more closely in the following chapter on the abnormal personality.

Let us now examine the alternative δ paths where internal circumstances finally demand denial of expression to the drive. First the individual may *suppress* (δ·3) the offending drive. In this process he faces it, admits its immoral or inappropriate character, and thrusts it aside by a concerted act of will, i.e. of the ego or self-sentiment, until a time or place when the drive is no longer immoral or inapt. As indicated by the circular arrow, this only postpones conflict. In times of fatigue, or relative change in the forces involved, the individual comes back to the second crossroads situation where the conflict has again the option of taking new turns. Usually suppression is habitually adopted by any assured, powerful ego or by any personality when drives of no great power are involved.

Often the process of suppression, in natural circumstances, actually tends to be associated with renewed attempts, by selective action (i.e. by suppression of unsuitable means of reaching the goal or amendments of the goal itself), to obtain the original satisfaction, as in routes α (1) and β (1). Since suppression means 'fully conscious, realistic, intelligent, inhibition of a drive' the appearance of eleventh hour solutions in this way is not surprising. But whereas α (1) and β (1) mean full expression and satisfaction, δ (1), by definition of the situation, is a route in which full satisfaction is no longer possible. The name *sublimation* has been given to that stable mode of partial satisfaction of a drive in which some socially acceptable goal other than the natural biological goal has been adopted by such an 'amendment'.

Sublimation of some drives, such as hunger or thirst, is practically unthinkable. Presumably they are innately more rigid because the organism would die almost at once if they were successfully sublimated. Mating and parental drives are slightly less rigid as to goal. At first this is surprising, for natural selection would eliminate plastic susceptibility to unbiological sex satisfactions as quickly, i.e. in one generation, as abnormalities of hunger or thirst. But the elimination is not as immediate in time—an individual might be sexually abnormal for a phase of his life without reducing his effective fertility, especially with the greatly reduced fertility of human societies—and certain advantages for survival of individual or group are gained in other ways by capacity for sublimation. Drives such as self-assertion, curiosity, gregariousness probably represent a still greater degree of goal plasticity. Possibly extreme experimental conditions would induce slight sublimation even of hunger and thirst: ship-wrecked sailors have been known to eat the leather off their oars or drink seawater, neither of which is a natural goal or biologically effective.

Plasticity of goal makes possible both sublimation and perversion. The difference between these is in the first place cultural. Unwin has shown (7) that the richness of religious life in a great range of cultures, from the most backward tribes of the New Hebrides to the highest groups in cultural achievement, is inversely related to the freedom of sexual customs, thereby giving proof to the psycho-analytic speculation that much religious activity is a sexual sublimation. In particular clinical cases it has also been brought out that art, mathematics, zeal in social reform and many other cultural activities arise from aim-inhibited (goal deflected) sex. It is noteworthy, however, that these activities seem to pass over very readily into perversions, as in some primitive religious rites, which have degenerated. It is also noteworthy that homosexuality is more common among highly cultured peoples, and individuals who have been brought up with rigid sexual inhibitions, than in people nearer to nature. Whether a goal change shall be called sublimation or perversion depends on whether the culture considers that it is for the good of society or anti-social. It happens, however, that perversions are also more frequently regressive (i.e. reactivations of earlier instinct fixations) than are sublimations. This will not be clear until after the next chapter, but we must note here that the distinction is not *entirely* one of social rather than individual dynamics.

A query about the main adaptation processes which we must face here concerns whether sublimation (and perversion) can occur at all without prior repression. Can it occur, for example, by an act of modification of aim by the will, associated with partial suppression? Typical sublimation occurs *after* repression, i.e. at the fifth crossroads, rather than the fourth, by means not yet fully understood. It is likely, however, that some degree of sublimation can occur at the fourth stage, before repression is complete. Because of this uncertainty, we have indicated this path only by a dotted line, indicating that research investigation is needed.

The third alternative when faced with the need of denying expression is repression—(δ·2). As indicated earlier, this is not a willed activity. The individual wakes one day and finds that he has forgotten—or such would be the case if he were aware that he had forgotten! It is sometimes sudden but generally fairly gradual. It is an activity of the ego—of what in dreams is called the 'censor' function of the ego—but is not willed. The censor is presumably that aspect of the organized ego which fronts the unconscious, not in itself fully self-conscious, as is the self-regarding sentiment, but acting consistently with the standards of the self-regarding sentiment. The super-ego, in its conscious and unconscious injunctions, also participates in the process of repression.

The act of repression is still insufficiently understood. It proceeds by breaking association bonds so that recollections with a certain feeling tone, which would normally subsidiate to other ideas or memories in the same drive, fail to do so. Associations also become broken in the realm of logic (as in rationalization: see next section), so that logical connections which should be made are avoided. Indeed repression and rationalization involve the same processes to an extent not yet sufficiently explored. Repression is not an irreversible process, for by hypnosis, by drugs which 'knock out' the censor, as in dreaming, and by bringing other powerful dynamic trends to bear in a steady process of digging into the unconscious, as in the method of free association, the complexes resulting from repression can be released again.

5. THE FIFTH CROSSROADS AND THE ε SEQUELS

The course of adaptation, now entirely internal, must next be pursued to the fifth crossroads, where the alternatives following repression can be studied. Because clinical psychology at first studied only neurotic and abnormal cases it was mistakenly generalized that all repression leads to symptom formation. Later it was realized that the normal, average person practises a good deal of repression without evil consequences. 'Successful' repression, where the repressing forces are so powerful and well organized that no disguised and fragmentary symptomatic expressions slip back through the cordon may take two forms—ε·1, where the drive after repression achieves an entirely sublimated expression, aim-inhibited so as to be quite remote from the original; and ε·2, where the inhibited drive never appears again.

About what happens in the latter process we still know very little. The only evidence is silence, and, as when a person completely disappears, we can only conjecture whether murder, suicide or kidnapping has taken place. What seems certain at a purely clinical level is that the individual suffers a double energy loss. He loses certain id forces which, more tactfully handled, might have enriched and strengthened the ego. And he loses the ego forces which have to be detailed off to invest and balance the rebel id forces in a perpetual stalemate of siege. The individual who has handled his early conflicts by extensive repressions is therefore likely to be a rather colourless person, rigid and lacking in spontaneity. Whether the deeply inhibited desires perpetually retain their energy, so that they could again be released, or whether extensive withdrawal or deterioration goes on, remains a debatable question. Investigation is also needed of the suggestion that somatic, bodily, changes may occur as a result of permanent repression of certain appetites, e.g. degeneration of sex gland tissue in the schizophrenic, alimentary tract changes in totally repressed aggression.

The third pathway that we will consider—ϵ·4 on Diagram XVI— following repression, is the development of an active phantasy life, in which the drive achieves some degree of expression. Why mere phantasy can give satisfaction remains rather obscure, but it is a commonplace that it can. Perhaps the fatigue of imagining to some extent uses up the drive energy. Also we must note that phantasy occurs most in children and in abnormal adults, where the function of 'reality testing' has to some extent broken down or never developed and phantasy has come nearer to reality. The deep analysis of clinical cases has revealed the rather remarkable fact that phantasies can be unconscious as well as conscious. That is to say, some activity can go on in the unconscious mind which causes the same reactions (chiefly satisfaction and guilt) in the rest of the mind as with conscious phantasy. Also these phantasies can sometimes be brought in and out of consciousness without interrupting their continuity. If the phantasy satisfactions are conscious they must, of course, be disguised,[1] so that they do not, in turn,

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[1] The student is referred to any general textbook of psychology (Chapter IX (4)) for an account of the disguise processes which go on in ordinary dreams of sleep. The 'manifest content' of the dream, i.e. that actually remembered immediately afterwards, is derived from the 'latent content', i.e. the hidden drives seeking phantasy expression, by four processes of disguise designed to prevent the censor being alarmed and the dreamer waking up. These are: (1) Displacement (of emotional emphasis, so that the important is trivial); (2) Condensation, whereby one object or action stands for several matters in the latent context; (3) Symbolization, of objectionable, mainly sexual matters by harmless symbols. (4) Dramatization, in which

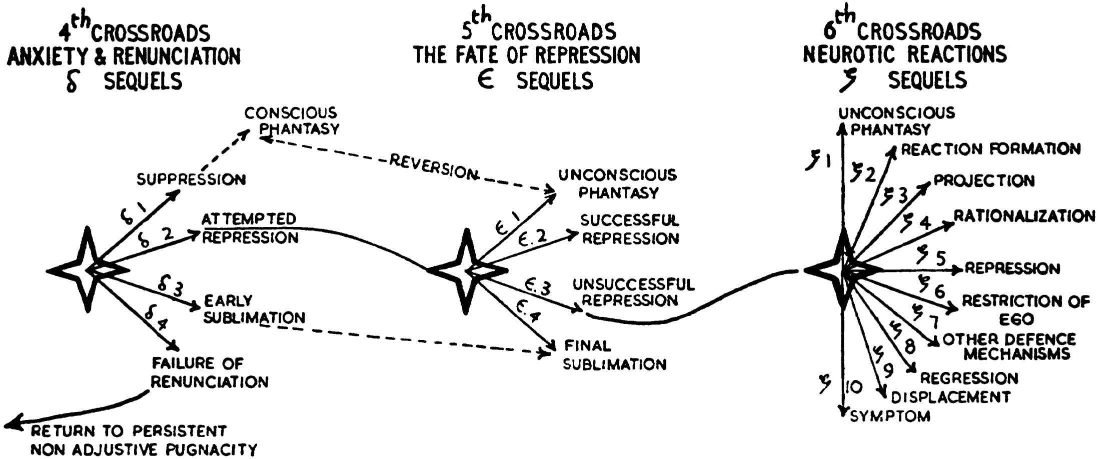

Diagram X.—The Last Three Dynamic Crossroads.

provoke repression. Suppression, on the other hand, may sometimes permit undisguised phantasy when it will not tolerate action. A good deal of phantasy is, of course, an entirely healthy and realistic 'ideational experimentation', directed to solving real problems by imagination. But phantasy as understood here is 'autistic phantasy or thinking' which avoids real associations and difficulties, being concerned simply to dwell on the satisfactions possible for a desire.

The fact that an individual resorts to repression, i.e. that he ever reaches the fifth crossroads, is itself proof that internal conflict has reached dangerous, or at least uncomfortable proportions; for the ego employs the extreme measure of repression only when it is beginning to feel its authority really endangered. Consequently it is not surprising to find that, in addition to the more or less stable solutions from effective repression in paths $\epsilon{\cdot}1$, $\epsilon{\cdot}2$ and perhaps $\epsilon{\cdot}4$ there is also a sequel, in path $\epsilon{\cdot}3$, where the solution remains unstable and the ego reaps a crop of problems created by the act of repression.

6. THE SIXTH CROSSROADS AND THE ς SEQUELS OR EGO DEFENCES

In discussing anxiety we have pointed out that the greater part thereof ultimately derives from normal fear of punishment or loss in the external world, though the stimulus may have become a symbol or memory encapsuled in repression and no longer susceptible to modification and deconditioning by experiences in the real world. But it is probable, as indicated briefly above, that in addition to this normal innate response to outer danger and loss, the fear erg is also innately set to react to an internal stimulus, namely the *fear of loss of control* by the ego. It may be objected that fear of committing an absurd impulsive act or of going mad is due to the loss of self-respect and of social rewards which one has learnt will ensue. This

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different people represent contending principles, attitudes and drives. The proverbial rapid vanishing of dream memories and the 'secondary elaboration' during the morning are also indications of the continued attempt of repression to avoid leakage.

admittedly powerful punishment may not be the whole story, for it has been shown, in a number of accidents and physiological experiments that if the internal machinery of the body behaves in an odd way, e.g. if a man's eyes begin to move in the opposite direction to his willed intention, fear and anxiety instantly appear. It may be that this innate response is merely part of the general innate response[1] of 'fear of the strange and unknown'.

Whatever the relative role of these two sources there can be no doubt that a situation in which the ego begins to lose control over powerful id impulses is one which causes anxiety to mount rapidly. In such circumstances the ego resorts in panic to what have been called 'ego defence mechanisms' or 'ego defence dynamisms' which act as props whereby it may buttress itself against forces too strong to be managed in 'open' warfare. Among the rather numerous ego defence dynamisms are repression itself, rationalization, projection, introjection, reaction formation, desensitization, restriction of the ego, identification, transference, isolation, undoing, turning against the self, reversal, regression (in certain circumstances), phantasy, etc.

These defence mechanisms occur at the sixth crossroads—the point at which the first attempts to handle the drive that has to be renounced have broken down. The ζ sequels thus arise at the point where the first acts of repression have broken down and set up unstable relations between ego and id.

The student interested in understanding these dynamisms in more detail should read the lucid monograph of Anna Freud (2): here space compels us to confine ourselves to a brief definition of the most important.

In *Projection* (ζ·1) the ego thrusts upon the external world the id drives which it would be painful for the ego or super-ego to accept as belonging to the person concerned. Instead of 'I have homosexual feelings for A' the individuals prefer to believe 'He has homosexual feelings for me', instead of 'I hate everyone' he projects the hate and believes 'Everyone hates me'. As the present writer has shown, there are three distinct forms of projection, operating according to situation.[1] Projection can be seen at work in dreams, superstitions, phobias, hypochondria, depression and, most obviously, in paranoia, where the patient assumes that other people possess the diabolical intentions which his ego is actually fighting in his own id.

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[1] Mild degress of strangeness are the innate stimulus situation for the erg of curiosity; but excessive and sudden degrees seem innately set to evoke fear—with good biological reason.

Rationalization (ζ·2) is a process of fooling the ego by sincerely believing that some undesirable expression of the id is actually working for some idealistic goal. In this last refinement of hypocrisy the individual distorts logic and the interpretation of reality so that, for example, as a clergyman he may believe that his attentions to a young woman are entirely for the good of her soul (as in Somerset Maugham's *Rain*), or that, as an army officer, his homosexual sadistic satisfactions in dragooning his men are motivated by the ideal of high standards of discipline (as in D. H. Lawrence's *The Prussian Officer*).

Reaction Formation (ζ·3) often comes to the rescue of an uneasy repression. Here the person attempts vigorously to adopt conscious attitudes which are directly opposed to those being repressed in the id. A respectable 'anxiety about' someone's health may cloak an aggressive death wish. A prudish censoriousness so insistent that one is tempted to say "Methinks she doth protest too much" is likely to hide a prurient excess of sexual interest. And a man who is too quick to see and combat cruelty and injustice at every turn may be struggling to manage excessive sadistic trends in his own nature.

Restriction of the ego (ζ·4) consists of a defence against id impulses by avoiding stimuli and situations in the external world which provoke those impulses. 'Lead us not into temptation' is a constructive step in adaptation until it reaches the excessive caution when one is afraid to meet important aspects of reality. It can easily act in the sense of rendering the personality narrow in sympathy and experience and may finally lead to the expression of anxiety in a typical neurotic phobia or obsessional avoidance.

Formation of Overdetermined Neurotic Symptoms (ζ·5). Yet another solution to the loss of equilibrium is the formation of neurotic symptoms, which absorb dynamic investments from the ego, id, and super-ego. This process will be explained in the immediately following chapter.

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[1] See the present writer's "Projection and the Design of Projection Tests of Personality", *Character and Personality*, XII, 1944.

Conscious and Unconscious Phantasy (ζ·6). Reasons have been given above for supposing that unconscious phantasy occurs. This is one more way of discharging tension and assisting the ego to regain some degree of equilibrium in relation to the id. The line between conscious disguised phantasy and unconscious phantasy is not sharp, so that, as indicated in Diagram XVI, this passes over readily into the same form of expression as ϵ·4.

The choice of ego defence mechanism depends on the age and on the previous experience of success with certain methods. None, however, is *consciously* adopted by the ego, but rather 'silently and invisibly' as a blind attempt at adjustment. The use (to quote Freud) of any defence mechanism, from repression to displacement, is a confession of partial failure in solving internal conflict, and prepares the ground for neurotic symptom formation. The action of the defence mechanisms when they lead specifically to neurotic symptoms and neurotic breakdown we shall study in the next chapter.

7. SUMMARY CONCERNING COURSE OF ADAPTATION-ADJUSTMENT

(1) Metanergic structures arise from failures of satisfaction when the organism operates on ergic structures alone. Their rise depends also upon constitutional conditions of (*a*) low rigidity, (*b*) intelligent discrimination, and (*c*) capacity to respond to remote memory cues.

(2) The path of adaptation-seeking, which may end in adjustment or maladjustment, can be systematically analysed into five 'adaptation crossroads' at each of which some two to four alternative paths are open.

(3) At crossroads 1—'Stimulated Drive'—the paths lead to: α·1, Satisfaction; α·2, Deprivation; α·3, Suppression by a stronger drive; and α·4, Frustration by a barrier.

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(4) At crossroads 2—'Initial Frustration'—the possible conclusions are: β·1, Circumvention of barrier; β·2, Breaking of barrier by rage; and β·3, Failure to break barrier.

(5) At crossroads 3—'Failure of Aggression'—the alternatives are: γ·1, Appeal, leading to outside help or despair; γ·2, Fear and avoidance of the whole stimulus situation; and γ·3, Renewed anger and sulking with persistent, non-adjustive behaviour.

(6) At crossroads 4—'Anxiety, with Renunciation of Primary Drive'—there can ensue δ·1, Sublimation of a partially willed kind, intrinsic to conscious partial suppression; δ·2, Attempted repression; and δ·3, Suppression, with possibilities of return to the second crossroads.

(7) At crossroads 5—'Consequences of Repression'—there can ensue ε·1, Complete sublimation; ε·2, Successfully maintained total repression; ε·3, Unstable repression leading to neurotogenic ego defences; and ε·4, Phantasy.

(8) At crossroads 6—'Failure of Dynamic Equilibrium'—a variety of ego defence dynamism sequels appear of which the most common are ζ·1, Projection; ζ·2, Rationalization; ζ·3, Reaction Formation; ζ·4, Restriction of the Ego; ζ·5, Overdetermined neurotic symptoms; and ζ·6, Conscious and unconscious phantasy. These, especially the dynamic determination of neurotic symptoms, are discussed in the next chapter.

(9) Anxiety appears at crossroads 4, and again at 5 and 6. It is derived from simple ergic fear by (1) Anticipation of counter aggression and loss from expression of the primary drive; (2) Especially in its reinforcement at 5. ε·3, from innate response to strangeness of failure of ego control. This primary drive of escape, maintaining the inhibition of the original drive and of the aggression begotten by its thwarting, leads to other consequences, notably regression, ego defence mechanisms and psycho-somatic changes.

(10) The ego which, at the behest of a tyrannical super-ego or its own panic over the magnitude of rebellious drives, resorts to excessive use of repression, is likely to find itself in an unstable position. The ego defence mechanisms are then invoked, and maintain, with a certain rigidity and clumsiness, the

standards of behaviour which would otherwise be flexibly maintained by an adequate ego.

(11) The formulations in the above dynamic crossroads apply to the fate of a single drive or dynamic trait. The confluence of two or more dynamic traits in some single path of expression, such as constantly occurs in the dynamic lattice, can, of course, consist of a combination of dynamic traits each at very different stages in the sequence of crossroads, e.g. a response may satisfy at once a repressed and a fully conscious need.

MORE ADVANCED READING

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4. Masserman, J. H., *Principles of Dynamic Psychiatry*, 1946.
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7. Unwin, J. D., *Sex and Culture*, 1934.

CHAPTER VI

THE ABNORMAL PERSONALITY: NEUROTIC AND PSYCHOTIC

1. ADJUSTMENT, ADAPTATION AND INTEGRATION

AT this point it is profitable to concentrate on the abnormal personality, first, because we are now equipped to understand its natural history and social incidence, and secondly, because it permits us to perceive the ultimate refinements of the dynamic adaptation course we have just been following.

'Abnormal' is a term differently understood by psychologist and statistician, moralist and lawyer, but it is a mistake to assume their viewpoints to be entirely independent. A man who obtains an I.Q. of 160 on an intelligence test or who can force himself to work a 2 kilogram weight on the ergograph continuously for 15 minutes, is abnormal to the statistician—in the sense of being very rare—but not to the psychologist who thinks of the abnormal as 'unhealthy'. All the viewpoints eventually resolve into these two (1) rare, unlike the standard or average, and (2) mal-functioning, ineffective for the given purpose. The moralist, the sociologist and the lawyer also range over these two positions. Behaviour is 'bad' because it is unconventional, contrary to the social norm and the legal forms in which the norm has crystallized. It can also be 'bad' in the sense of non-functional—as immoral behaviour functions against the harmony of society and the individual. Frequently, but not always, the most common pattern is that which has proved itself to be most functional and healthy, so that these two basic meanings, though logically distinct, tend in practice to correlate.

Our study concerns the second of these meanings—functional inadequacy. We shall pay little attention, for example, to the feeble-minded—a perfectly normal biological type, primarily 'abnormal' in the sense of being extreme and secondarily somewhat functionally abnormal in the sense that he cannot function well in a society built for people several years of mental age older. Functional abnormality has to be judged by the criterion of *adaptation*, and adaptation, when examined more closely, resolves into partially independent criteria of *adjustment*, *adaptation* and *integration*.

Adaptation is used in precisely the sense of the biologists: how well does the organism's behaviour ensure its own survival and that of the species? In man this includes adaptation to moral as well as physical realities, for an amoral society does not survive and a gangster tends to be shot by the police. If a man's way of life is such that it effectively gets him a living, looks after his family and contributes to the well-being of the society on which he ultimately depends he is well adapted. The neurotic, the psychotic and the delinquent, by the criterion of adaptation, are abnormal, and hence the focus of our study.

Adjustment is a term frequently used in the sense of adaptation above; but since the latter has long been stably defined in this exact sense it is better to use adjustment for another, distinct essential concept. Adjustment should strictly be used to describe the internal dynamic arrangements—to refer to the last three dynamic crossroads, just as adaptation describes what happens in the first three. We discern the state of adjustment by asking such questions as 'Is the person happy?' 'Has he few or great internal conflicts?' 'Is the internal dynamic adjustment likely to be stable?' 'Does the individual use up much of his energy in internal conflict or the maintenance of repressions?' The last is illustrated by Shaffer's (3) definition of adjustment as 'tension reduction' (i.e. reduction of ergic goal tension), but this must not be accepted as the whole definition,[1] otherwise the best adjusted man would be a dead man. Rather the meaning centres on 'loss through internal friction'. Two people may be equally adapted, in the sense of meeting their social, moral and biological obligations, but the second may achieve this adaptation at the cost of much greater internal conflict than the first. The first is then said to be better adjusted.

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[1] This use of 'tension' was an unfortunate offspring of the era when psychologists were trying to avoid the notion of drives. It tries, with the distortion and evasiveness typical of its parent era, to define that logical impossibility, a force without a direction.

It is possible for a person to be adjusted but not adapted. For example, a man may be free from conflicts or repressions so long as he expresses himself criminally, or takes opium, or maintains some dangerous, exciting hobby, none of which is compatible with survival. Or a well-to-do, voluntarily childless woman may be perfectly happy with the 'sublimations' of social distraction into which her maternal interests have disappeared. But she is not adapted, for a society composed of such women would perish.

Similarly, as we have seen, it is possible for a man to be adapted but not adjusted, as seen in many severe neurotics who nevertheless hold a job. However, in this case the loss of energy by internal friction always to some extent detracts from the final soundness even of the adaptation. Indeed, in general, adaptation and adjustment will tend to go together. If, for example, one has observed psychological adjustments and adaptations in the recent war, he sees that the soldier who dies for his country in the complete faith of courage is both adapted and adjusted, whereas the neurotic is neither, for his internal adjustment is miserable and his external adaptation is not such as would permit his group to survive.

By extent of integration we mean the extent to which the individual's conscious purposes work together harmoniously or detract from one another. Does the person undo with his left hand the work done with his right? If, for example, a man states that his goals are to be a great athlete and to eat as much food as he can, or to contribute his utmost to science and to make a lot of money, we may suspect him of a certain lack of integration. Integration is initially independent of adaptation and adjustment. One could be very integrated about some very maladaptive goals, as was, for example, Schopenhauer, in his intention to have nothing to do with the general human life processes. And since integration concerns the purposes that are left to act in the external world after the internal frictional losses of maladjustment have taken place, it has originally nothing to do with adjustment as such. However, again circumstances tend to produce, in practice, correlation; for the individual with good adaptive goals loses some actual adaptation if his courses of action lack integration, while the conflicting external courses of action which exist in poor integration will generally tend to be thrown back into the internal conflict of maladjustment.

At present there is no generally agreed usage of these three terms, and it does not much matter whether the student adopts those of others or the present writer, providing he keeps three distinct dimensions of dynamic 'soundness' in mind. There is already some indication in factor analyses of normals and neurotics of the general nature of these three dimensions. Our present study of the abnormal covers first the adaptively abnormal, but also abnormality of adjustment and integration.[1]

2. ERGIC REGRESSION AND PERSONALITY REGRESSION

In the preceding chapter we have studied a system of adaptation-adjustment analysis requiring reference to six dynamic crossroads. We are now in a position to study this device more closely with respect to its analysis of the sixth and last crossroad alternatives—the ζ sequels, which may be called the neurotogenic sequels, since they and they alone, are associated with unstable equilibria and maladjustment tensions which lead to symptom formation. (Though $\varepsilon \cdot 4$ must also be considered a preliminary ego defence and a form of maladaptation and maladjustment.)

However, before examining the ζ sequels more closely it is desirable to get fuller perspective, by surveying the kind of frustration situations that have been found operative in neurosis and which start the general pattern of dynamic readjustment beginning at the second crossroads. It might reasonably be expected that the average adult, whose ego structures are normally developed, would have encountered the frustration of a drive, and even the necessity of renouncing it, so frequently, that he would have acquired such skill in suppressing or sublimating as to render entry into the unfortunate ζ paths unlikely.

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[1] It may be necessary to stress at the end, as we did at the beginning, that these concepts of abnormality are *not normative*, in the sense that the conventional, the statistical average, would be the norm from which abnormality is measured. It is possible to have whole communities of neurotics and still recognize that they are neurotic, because, at least theoretically, we have a standard of a dynamically efficient mind, free from 'kinks', from which all minds to some extent fall short, i.e. are to some extent defective in adjustment.

This expectation is substantiated in fact. Clinical psychologists noted quite early in psycho-analytic history that the neurotic reacts with a certain immaturity and that his conflicts are not with the errant drives ordinarily stimulated and suppressed in adult life. It is true that the commonest and most intense conflicts are with the ergs of sex and pugnacity, but the neurotic conflict ensues generally from infantile forms of these. In Chapter V, Section 2 a first outline of the maturation and regression of the sex erg was given, both with respect to goals and erotic zones. Freud was surprised to discover that in neurotics the moral inhibitions of the super-ego were generally in conflict, not with normal adult sex desires alone, or even at all, but with infantile 'polymorphous perverse' sexuality.'[1] Here the conflict cannot be solved because the very nature of the drive makes ordinary expression physically or socially impossible, and even the nearest sublimations are liable to appear as ridiculous or obscene perversions.

The first problem in understanding neurosis is therefore to explain why the libidinal desires have become obstinately fixated at an immature level, e.g. auto-erotic, anal-erotic, oedipal, causing frustration problems to take on an aggravated form and degree. One wonders also whether the immature level is one from which the individual has never advanced or one to which he has retreated.

[1] So called because infantile sexuality is polymorphous, i.e. enjoying extreme variety in outlets for satisfaction—and also obviously related to the forms of what are regarded as perversions in adults. There are few of the obstinate distortions of sexual expressions in abnormal adults that cannot readily be identified with behaviour phases that are transient in the normal infant.

It was natural to look for the cause of this retreat in the immediate trauma or life difficulty which placed the neurotic in a dynamic impasse. But the psycho-analysts claimed that though anxiety might contribute to regression—indeed regression can occur sometimes as a defence mechanism, as indicated in Diagram X in the last chapter—the main causes were prior to the present situation and were rooted in (*a*) constitutional, and (*b*) early libidinal experiences. This is logical as well as empirical; for though anxiety over adult sex demands might be relieved by giving them up, through regression to more infantile satisfactions, the latter are more likely to cause trouble, of a new and less tractable kind, than the former.

The 'early libidinal experiences' are principally those of too little or too great and prolonged stimulation and satisfaction of infantile sexuality, such as might occur, for example, through a mother, dissatisfied with the father, unwisely playing into the oedipus situation by overfond caresses of a son. Freud likens the

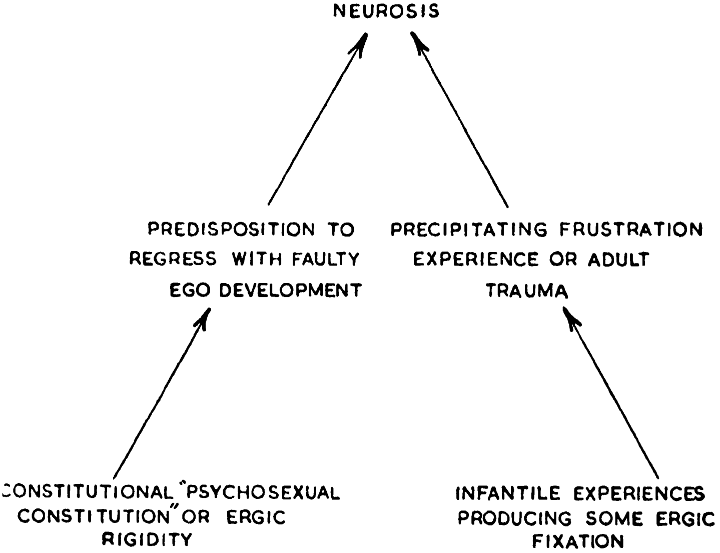
NEUROSIS
PREDISPOSITION TO REGRESS WITH FAULTY EGO DEVELOPMENT
PRECIPITATING FRUSTRATION EXPERIENCE OR ADULT TRAUMA
ONSTITUTIONAL "PSYCHOSEXUAL CONSTITUTION" OR ERGIC RIGIDITY
INFANTILE EXPERIENCES PRODUCING SOME ERGIC FIXATION

Diagram XI.—Outline of Essential Factors in the Production of Neurosis.

maturation of an instinct to the march of an army, in which leaving too strong detachments at an earlier fort on the line of advance may so weaken the main body that it cannot advance far enough, especially when difficulties increase. As regards heredity (the inquiries of Chapter III prove an appreciable hereditary influence) he pointed out that some people have a more 'psycho-sexual constitution' than others, i.e. a constitution in which sexual demands, especially the earlier and more direct forms, cannot be readily sublimated and long circuited. This seems to be general ergic rigidity (see Chapter II) as it appears in the sex drive, an explanation in agreement with the finding of high rigidity scores in neurotics.

Psycho-analysts, therefore, are inclined to regard the admitted association of regression with neurosis as proof that regression is a cause and only rarely a consequence. Incidentally, one must distinguish clearly between ergic regression and regression of the total personality. Many instances are recorded, clinically and experimentally, of regression of total behaviour, as when a grown man insists upon crawling on all fours, talking in baby talk and forgetting his adult skills and personality. Personality regression occurs in ordinary play, in conflict, shock and fatigue, and in neurotics called to face too difficult an adult situation.

General regression is to be explained largely in terms of amnesia, i.e. the forgetting and abandoning of acquired habits which have ceased—in the dismaying situation—to be rewarding or which have become burdensome. It is 'regressive' merely because the abandoned habits happen to be those acquired later than habits that remain rewarding, though it may also be 'regressive' in a sense involving moral or other values, i.e. 'a falling away from desirable forms'. Ergic regression, on the other hand, is a withering of a maturation stage, not the undoing of learning. Unlearning may or may not lead to poorer integration and adjustment. Because ergic regression is a cause of neurosis and creates difficulties for any attempt to live on a highly integrated adult level, it is often associated, secondarily, with general personality regression, i.e. loss of integration; but in essential nature the two are different.

3. THE FORMATION OF NEUROTIC SYMPTOMS

Maladjustment reaches a zenith in the psycho-neuroses, though maladaptation is greater in delinquency, and maladaptation and disintegration are together greater in the psychoses. The reader who studies the four main 'syndromes' of neurosis described in the next chapter will note that in every case the maladjustment has reached the point where some feeling or action has finally broken out of control of the conscious ego, which constitutes the first and perhaps most essential definition of neurotic symptom. This loss of ability to integrate behaviour is usually accompanied by some embarrassing consequence in the form of inability to adapt, or by such internal tension and pain that the sense of maladjustment becomes acute. It is this total situation which defines a neurosis and a neurotic symptom.

At what final dynamic crossroads does one enter the cul-de-sac of the neurotic impasse? Neurotic symptoms have been indicated as an immediate possibility among the ζ sequels of the sixth crossroads, but the majority arise as it were at a seventh stage, constituted by the failure of the defence mechanisms to work as they were ideally intended to do. For the defence dynamism is intended to defend the ego by giving the repressed drive some expression that is socially, morally and realistically acceptable. Nevertheless, since it is a panic device, brought in, above all, to give immediate ego security, even the initial defence dynamism may virtually be a neurotic symptom. The projection of aggression may create what is to the unbiased observer obviously irrational, neurotic avoidance behaviour; the rationalization may seem egregiously far-fetched, the reaction formation may strike the onlooker as clearly obsessional in its distortion, and so on.

However, in the typical, full-fledged neurotic symptom there has occurred, under the dynamic pressure, a breakdown of the defence mechanism and of the immediately related structures—a kind of mental haemorrhage from which a new structure has appeared—the symptom. For the symptom is an *ad hoc*, disorderly device expediently trying to satisfy what the regular structures cannot satisfy. It gives satisfaction at once (usually symbolically) (1) to the escaped, imperfectly controlled id impulse, (2) to the need for self-punishment originating in the outraged super-ego, and (3) to the attempted ego-defence against the tension both of the id and the super-ego. As the psychoanalysts have pointed out, the character of the symptom is explicable if one remembers that it is thus 'overdetermined' by several causes. It is indeed a necessary compromise (but not a planned ego-controlled, middle-of-the-road expression) representing the 'resolution of forces' from id, ego and super-ego. As we shall see later, there may also be a 'secondary gain', an unforeseen dynamic bonus, from the fact that the symptom enables the individual to avoid work or responsibility. But this, like the above dynamic satisfactions in the symptom itself, is generally purposive rather than purposeful.

These principles can be readily illustrated by reference to any compendium of case histories. Let us first consider a typical conversion hysteria, a case of a girl suffering from deafness, without physiological cause and along with emotional superficiality and other signs of hysteria. Free association eventually brings to the surface emotional connections which show (1) a strong oedipus relation to the father, the sexual, id drives in which achieve expression by identification, for the father also suffered from deafness. (2) Punishment by the super-ego for the forbidden wish, in that the deafness is really an affliction to the ego. (3) Secondary gain in that she gets sympathy for her disability and is also able to avoid the drudgery of music lessons.

The reader should note there is no inconsistency in supposing that the gain and suffering do not cancel each other. Different structures are involved: the super-ego profits by the punishment; the id profits by the sympathy. The well-known application of these principles to the lesser amnesias, symptomatic slips of the pen and tongue in averagely adjusted people illustrate the same point. The man who completely forgets a certain appointment, which he knows is going to be very humiliating but which is very important to him, may say "It is absurd to say *I wanted* to forget. In the long run it will cost me a lot to have missed the appointment." This is true of the conscious ego; but the unconscious id, which, in any case, never barters immediate satisfaction for 'in the long run', certainly wanted to arrange a forgetting. It may be objected that this supposes some splitting of the individual. This is true: all conflict presupposes separate dynamic foci; but it is only in the neurotic that this incompleteness of integration has reached dangerous proportions as a result of operating by repression and other defence mechanisms, instead of by suppression and sublimation.

Exactly the same principles are at work in any case of anxiety hysteria. The symptomatic difference from conversion hysteria arises partly on temperament and partly on the relative magnitude of the forces involved. In the anxiety hysteric the role of the super-ego is more powerful. The ego defends itself more by unconscious phantasy, by reaction formations and, in phobias, by projection. The id gains satisfaction from the unconscious or conscious phantasy and the super-ego gains expression by punishing the ego with anxiety.

In one of the classical instances of phobia the individual had a dread of all small enclosed spaces. These symptoms vanished when the psycho-therapist eventually dragged up from his unconscious a recollection of an early childhood experience in which he was greatly frightened by a large dog in a dark, narrow passage way. But this cannot be interpreted as a mere mechanical conditioning. We find that in fact the child was going down the dark passage for an immoral purpose. The revival of phantasies of an immoral nature in the adult consequently reactivates the reinforced sense of guilt from the original experience. Unable to face this situation the ego projects its own anxiety (the threat from the super-ego) on to external situations, the particular association being suggested by the early experience. In this way, at the cost of projection, rationalization and restriction of the ego, it 'solves' the conflict, for by avoiding the places which cause the phobic reaction the ego finds that comparative 'adjustment' can be enjoyed.

The choice of symptom must be one which will satisfy the defence mechanisms operating at the time and also the id drive. To be permitted expression the id drive must disguise itself. To this end it suffers transformation usually by the same devices as do the forbidden wishes in dreams, employing symbolism, displacement, and the significance gained through accidental association. This may be illustrated by a Freudian case[1] of obsessional neurosis. A girl of 19 could not sleep unless she went through a ritual of gathering together the flower pots in her room on one table and arranging the bolster so that it nowhere touched the edge of the bed. When the psycho-analysis had brought unconscious trends to light and the symptoms had disappeared it became clear that the flower pots symbolized her own sexual organs and the bolster and bed her father and mother, respectively. She wished to separate them, or at least prevent their coming together, so that she could have her father to herself. Thus the behaviour gave symbolic comfort to the id, while the burden of the exacting ritual allayed a sense of guilt, for, as with most obsessional neurotics, the anxiety from the super-ego broke through only if she failed to carry out these 'senseless' acts.

This is as much detail as we can give to neurotic symptomatology. The reader is referred for more extensive study to Dr. Culpin's book in this series and to other reading listed at this chapter end. Suffice it that we bear in mind in accounting for neurotic behaviour (1) many neurotogenic processes have to intervene after the original frustration for a frustration to produce a neurosis, indeed the frustrated individual has before him all the alternative paths at crossroads 3, 4, 5, and 6—at least seven chances of reaction other than neurosis; (2) The symptoms are not accidental but follow the same laws as do dynamic traits in general, being the outcome of id, super-ego and ego demands; (3) Since sex, especially incestuous or perverted sex, is most frequently the subject of horror and taboo, with aggression following, most neurotic symptoms are symbols of sex desire or aggression, and expressions also of the punishment anxiety which these wishes generate; (4) The neurosis is merely 'provoked' or precipitated by a difficult situation in adult life. The more important cause is the preparation of the ground for neurosis by early life trauma and fixations which cause regression and create faulty, unstable ego development. This is summarized in Diagram XI which may be regarded as a supplement to Diagram X, describing conditions before frustration.

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[1] Freud, S. *The Meaning of Symptoms.*

4. SOME MODIFIED FORMS OF NEUROTIC BEHAVIOUR

Here we must first take account of the lesser but more pervasive neurotic conditions known as the 'character neuroses' and the maladjustments arising from a sense of inferiority, which do not often have the definite symptomatology of the neuroses just discussed. It was the Viennese psychologist Adler who called attention to the role of apparently non-sexual trauma in lesser neurotic conditions and delinquency and who coined the expression 'inferiority complex'. Adler's mechanisms are considered by most clinicians to operate at a more superficial level than those examined in psycho-analysis and to account better for the transient behaviour problems of children than for the true neuroses of adults.

Adler found in many neurotics that the reactions seem to lead back to some traumatic experience in which the person had been made to feel desperately inferior and insecure. The individual attempts to wash out this hurtful feeling of inferiority by over-compensatory strivings for eminence and absolute power. Indeed he behaves as if the only security were in absolute power over others and shows no sense of love and social solidarity with the group. A certain sense of inferiority is normal to the state of childhood and the associated drive to independence is part of normal growing up. The Adlerian psychologists found, however, undue frequency of physical defects and embarrassing peculiarities in the early life of neurotics, and concluded that by these scars the inferiority was exacerbated. Then the individual concentrates abnormally on correcting it and begets greater than normal strength (at the cost of distortion), as a broken bone grows thicker than one never damaged.

Unfortunately the individual does not generally have the capacity to reach such eminence. Except for a few geniuses, who possess special gifts which can be tortured into highest expression by this relentless drive to perfection, the goal of absolute eminence must remain a 'fictional' one. The individual gets discouraged and finally drags in a neurotic response as the only way to adjust the fictional goal to the reality. He says, "I am really capable of outshining everyone, but owing to this unfortunate disability I have to be content with the realities of my present life."

Adler cites the case of a woman who developed such a phobia of open spaces that she was eventually unable to leave her home at all. An infantile inferiority had led to an over-compensation in the form of an intention to cut a resplendent figure in society. When it became apparent that she had not the talent for the latter she developed an anxiety neurosis which prevented her going out, and so permitted her to escape from the test of reality. Similarly in a case known to the writer a young man developed a palsy (conversion hysteria) of the right arm after a trivial accident. It developed in analysis that through a powerful sense of inferiority he had developed the over-compensation that he would be a great novelist. Failing, after years of effort, he did not adjust by using the talents he had, in the useful but ordinary occupation which he followed, but developed instead a palsy which prevented his writing at all. This saved him from further efforts towards the unrealistic goal, while permitting him to believe that he was equal to it. The symptom is thus always very simply determined by the Adlerian mechanism, in fact what psycho-analysis regards as a mere 'secondary gain' becomes the whole dynamic reward. The distinction between legitimate, native ambitiousness on the one hand and over-compensation on the other is made on the basis of whether the ambition is adjustive and ready to meet the tests of reality or evasive and rigid.

The Swiss psychologist, Jung, has similarly departed from the psycho-analytic position by stressing that inadequacy, and the need for emotional dependence, are sometimes more important than sex needs in the causation of neurosis. Neurosis is regarded by him rather as a failure of self-realization due to a somewhat similar 'lack of courage' to that invoked by Adler.

How is this to be reconciled with the motivation principles considered above in psycho-analysis? In the first place the

Adlerian insecurity-inferiority is regarded by psycho-analysts as springing primarily from an unresolved oedipus conflict. The individual has failed to give up the primary sexual object and to introject the father completely as a super-ego. Consequently his libido is not de-sexualized, i.e. converted into sociability; his reaction to authority (father substitute) is rebellious and amoral, while he experiences constant guilt (insecurity-inferiority) as a result of clinging to the original id goal. This explains adequately the main characteristics of the inferiority case as described by Adler. The naming of a particular inferiority-provoking situation is then considered mainly as a projection of guilt-insecurity feeling already in existence. It is usual also to consider over-compensation as a special instance of the ego defence mechanism of reaction formation. But the difficulty arises that a reaction formation is normally a moral course of behaviour over-emphasized by the ego to subdue an opposing immoral desire in the id. The inferiority complex behaviour, on the other hand, is scarcely moral, though it may be considered as an attempt to hide a painful conflict between id and super-ego by emphasis of ego characteristics (self-regarding sentiment). It is possible also to consider the inferiority complex as a conflict simply between the drives of self-assertion and self-submission in which the latter represses the former and sets up reaction formations, but in the normal personality self-submission is not painful but adjusting (as in reverence), so that the basic explanation must deal, as above, with why this need to repress submissiveness arises.

Adler's descriptive observations on the general nature of the neurotic are not in dispute. As Horney points out (4), the clinical characteristics of the neurotic, apart from the disintegration and symptom formation, are a disproportionate need for affection (compensated by a 'don't care' attitude), an incapacity to give affection (compensated by a seeming compulsive eagerness to help), a sense of inadequacy (sometimes compensated by self-assertive striving) and an inhibition of any normal amount of aggression or sexual expression (sometimes compensated by affected domineering behaviour and compulsive, affected sex behaviour). But it could be argued that the sense of inadequacy found in the neurotic (see characteristics of source trait C, general neuroticism, page 155) is a secondary result, not a primary cause, of the real social awkwardness and maladaptation resulting from primary lack of an integrated, adapted and adjusted personality. It is quite easy, as the writings of psycho-analysts, of Jung, Adler, Horney and others show, to make a convincing argument, from a suitable collection of clinical cases, for any one of these alternative emphases on causation. Until present clinical methods are surpassed by more accurate observation and statistical treatment of measurements we must admit that our preference for the Freudian concepts in psycho-analysis rests only on an overall judgment of accumulated cases.

The advances of psycho-analysis in recent years have been partly in the direction of understanding social, group problems—which do not concern us here (see Chapter X), and partly in understanding the lesser, more prevalent forms of personality disorder called the 'character neuroses'. For example, it is possible to classify 'normal' people and to understand their peculiarities of character in the light of the general 'fixation level' at which the libido has become largely attached by the accidents of their upbringing. Here we recognize, in addition to the fully mature, unregressed individual, the partial regressions constituted by the oral, the anal and the genital characters—so named after the erotic region at which fixation has occurred.

The anal erotic character is one in whom there has usually been considerable conflict in early childhood over toilet habits. Sphincter control has become abnormally important because its early erotic component has not been passed by. Such a person showed originally a preoccupation both with the auto-erotic, narcistic pleasures of excretion and with the social taboos which maintain their repression. Later, through reaction formation, only the later emphasis is prominent and the auto-erotic interest can be inferred only by deficiencies in the adult sexual attachment. There are no true neurotic symptoms, but certain character traits are carried to excess, notably orderliness (particularly pedantic interest in cleanliness, and conscientious attention to trivia), parsimony, (extending to avarice) and obstinacy (extending to defiance, vindictiveness and irascibility).

There may also be aggressive cruelty, over-compensated by preoccupation with instances of injustice or persecution. This pattern is substantiated as a 'surface trait' by correlation study; but it is possible that the psycho-analytic account of its productions omits attention to appreciable hereditary elements or to the fact that children brought up in a pedantically exacting atmosphere would have more trauma over toilet training.

The inhibited personality is another of these 'types' recognized by psycho-analysis. Here, through reasons of upbringing, the super-ego has become all dominating, producing a shy, over-inhibited, nervous individual differing only in degree and frequency of symptoms from the neurotic personality. The ego renounces most of its normal freedoms and, like those early saints and anchorites who retreated to the desert, employs the ego defence of 'restriction of the ego' to avoid danger situations. There is much direct and indirect self-punishment and the individual may often dwell on the borderline of depressive and melancholic states. The opposite abnormality is the defective super-ego of the criminal and psychopathic personality, which we study in the next chapter.

5. THE PSYCHOSES

The systematic description of syndromes or categories of insanity as well as of the psycho-neuroses is dealt with in Chapter VII, Section 4, while their hereditary aspect was covered in Chapter III. Here we shall deal with general characteristics and causations. The dynamic processes which operate in psychoses are no different in essential nature from those which operate in psycho-neuroses, but the various defence mechanisms and symptom formation processes must be regarded generally as consequences rather than causes of the fundamental disintegration constituted by the psychosis. Very little success, theoretically or practically, has been achieved by attempts to explain the cause of psychosis psycho-analytically. Generally we have to turn either to physiological causes, e.g. the syphilitic poisoning of the cortex in general paralysis, or the physiological derangement of alcohol or lead poisoning, or else to inherited defects and degenerations, e.g. that underlying manic-depressive psychosis or Huntington's chorea, the precise nature of which is not yet understood.

There has been an attempt to explain schizophrenia dynamically as an ergic regression to the narcistic stage. So far this is descriptive rather than explanatory, for the general lack of interest in the objective world which characterizes the schizophrenic, his inward phantasy and his preference for auto-erotic rather than object-attached sex life, are indeed descriptive of the infant's early absorption in the world of his own body. The *cause* of this regression as conjectured by psycho-analysis, is a traumatic experience in the first object love, for the mother. This could arise from an exaggerated castration fear, through a dominating father or masculine mother, or from some total rejection of the child by the mother preventing even an initial oedipus relation. In the former case there would follow a terrifying super-ego of which the ego would live in fear. Schizophrenics typically have a pre-psychotic history of being very obedient, 'model' children, unduly dependent on an older person. (But not all model children are pre-schizophrenic!) Ultimately the schizophrenic behaves like a person with the ego functions destroyed and disintegrated—presumably under the ego-destroying fear of super-ego or environment—and it is not unusual to hear a schizophrenic speak of the onset of his disorder by saying 'I died at that time'. The failure of this dynamic understanding to lead to any successful handling of schizophrenia by psycho-analysis is explained as being primarily due to the fact that narcism prevents the patient from getting any emotional 'transfer' to the psycho-therapist, i.e. as due to the absence of any lever by which he could prise open the gate of heavy repression which blocks the patient's avenue of insight into his own problems. Besides, even with the will to recover, regression itself is a very obstinate condition which can be undone, after the process of years, only with the greatest difficulty.

The 'functional' psychoses (schizophrenia and manic-depressive disorder) and still more the long list of other psychoses which make up the psychiatrist's mental hospital population (e.g. senile psychosis, general paralysis, alcoholic psychosis, psychoses of child-birth, involutional melancholy, epilepsy, exhaustion deliria, beri-beri and some forms of paranoia) are therefore today regarded largely as being *primarily* organic, and sometimes also hereditary in origin, and are treated accordingly. The most promising therapy has been organic therapy, aided by psycho-therapy as the patient becomes more normal. Organic therapy takes the form of glandular hormone treatment, fever treatment, shock therapy, removal of focal infection and brain surgery.

Hormone treatment has helped a good deal with involutional melancholia. Shock therapy, in which the patient is brought to convulsions and unconsciousness by chemical injection or by electric shock to the brain, has brought a considerable percentage of recoveries in recent years from the previously incurable course of schizophrenia. It has also proved surprisingly effective in manic-depressive disorder. Unfortunately the type of schizophrenia with a high hereditary determination, which comes on slowly and insidiously, does not respond sufficiently to this treatment. In so far as the treatment is yet understood, it operates by breaking up ingrained 'vicious circles' of thought and behaviour, giving a chance for psycho-therapy to establish better mental hygiene.

The surgical treatment of victims of mental disorders has been tried only recently, in the past ten to twenty years, and, because it uses a drastic and irreversible operation, has been applied only to long-established, 'hopeless' cases. Connecting fibres from the mid-brain to the frontal lobes are severed (the frontal lobes have long been recognized as concerned with emotional control). After a period of some confusion the patient in most cases has lost the psychotic pattern of behaviour and emerged calmer, less anti-social, though also somewhat more simple-minded, i.e. lower in I.Q. than formerly.

Regarding the incidence of mental abnormality it has been estimated that about one person in six has neurotic symptoms justifying the diagnosis of 'psycho-neurotic'. (More of the rejections—30 to 50 per cent—from the Army draft in the late war were due to psycho-neurosis than to any other disability.)

About one person in fifteen is admitted at some time in his life to a mental hospital with a diagnosis of psychosis. The two tables below show the frequency of various psychoses and their relative distribution among men and women. It will be noticed that schizophrenia (dementia praecox) is the most prevalent of all psychoses—indeed the popular idea of a lunatic, back through Shakespeare's writings and beyond, has depicted this type. Manic-depressive disorder, which generally comes second, has some tendency to be associated with higher intelligence and better economic status (notice the private mental hospitals) than schizophrenia. There are many instances of geniuses with manic-depressive disorder but at most one or two with schizophrenia. To the question of whether insanity is associated with genius beyond chance expectation the only brief answer is that genius is more often associated with maladjustment than psychosis, but that it is possible that manic-depressive disorder is very slightly more frequent than in the general population (see (5)).

Frequency of Mental Disorders

A comparison among 10 psychoses of first admissions to State mental hospitals and to private mental hospitals, 1936[1]

	Per cent	
Psychosis	(1) State Hospitals	(2) Private Hospitals
General paresis	8·1	2·0
Cerebral arteriosclerosis	12·5	4·2
Senile	8·6	5·6
Dementia praecox (Schizophrenia)	20·1	13·6
Mental deficiency	3·6	0·8
Alcoholic	4·6	5·3
Epilepsy	2·2	0·4
Manic-depressive	11·7	14·6
Involutional psychoses	2·8	4·4
Paranoia and paranoid condition	1·5	2·5
Psychopathic personality	1·7	1·8
Alcoholism without psychosis	5·2	15·8

[1] Taken from *Description and Measurement of Personality*, R. B. Cattell, World Book Company, 1946, p. 33.

Sex Distribution of Mental Disorders

Psychosis	Male	Ratio Females to One Male
Involutional	1	2·5
Manic-depressive	1	1·25
Psycho-neurosis	1	1·75
Dementia praecox (Schizophrenia)	1	0·87
Cerebral arteriosclerosis	1	0·60
General paresis	1	0·28
Alcoholic psychosis	1	0·14

The age incidence is brought out more clearly in Diagram XII.

The detailed methods and organization of psycho-therapy as such are beyond the scope of this book. They may be studied in another book in this series (2) and in a brief survey by the present writer (Chapter IX (4)).

6. SUMMARY CONCERNING ABNORMAL PERSONALITY

(1) Adjustment, Adaptation, and Integration have to be distinguished. Adaptation is effectiveness of survival; adjustment is freedom from internal friction and instability; integration is consistency of behaviour with respect to attaining accepted goals.

(2) The 'neurotogenic' crossroads and the ζ alternatives occur where adjustments have to be made in maintaining unsuccessfully repressed drives in the id. Ergic regression, which must be distinguished from regression of the total personality, is both a cause and a consequence of this neurotic cul-de-sac.

(3) Neurotic symptoms are dynamically determined resultants of maladjustment, involving satisfaction of id, ego and super-ego forces in a poorly integrated solution. They satisfy the id in disguised and symbolic forms, in order to evade the super-ego. They satisfy the super-ego by punishing the ego. They satisfy the ego with some defence against recognizing the id, and sometimes with an unforeseen 'secondary gain'.

(4) Neurotically abnormal behaviour can arise from conflict over other appetitive ergs than sex. Adler and Jung clarified the

effect of trauma and deprivation with respect to self-assertion and security needs, but these strivings are at least partly derived from more fundamental, early libidinal needs. Refinements and

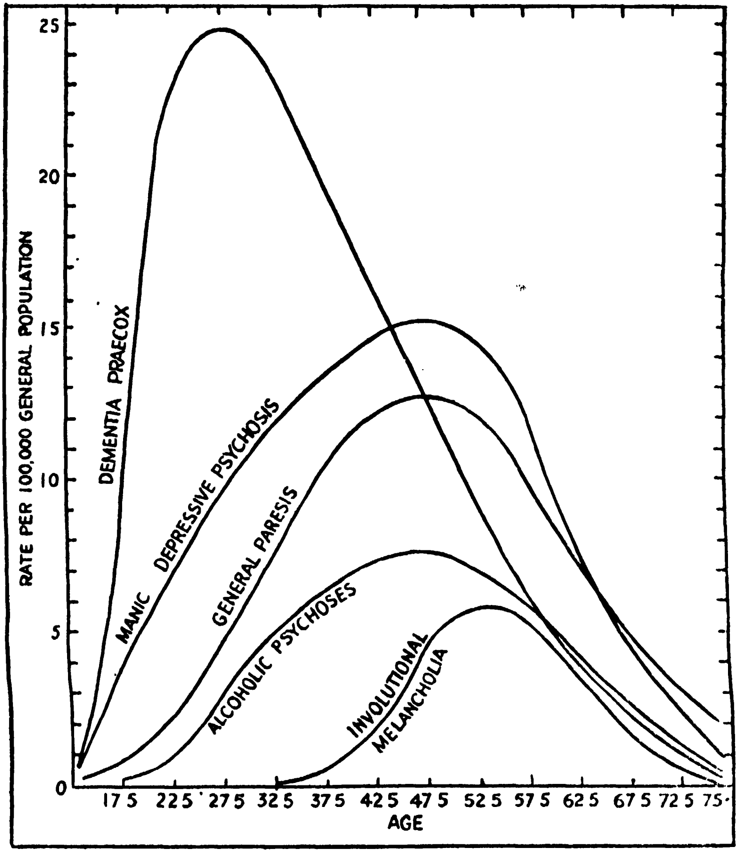

Diagram XII.

The Age of Incidence of First Onset of Various Psychoses. Number of first-admissions to state mental hospitals in the United States during 1933, by age and psychosis; expressed as rates per 100,000 of the corresponding general population of 1933 (from Landis and Page, *Modern Society and Mental Disease*, 1938).

further modifications of psycho-analytic understanding have brought to light also certain milder forms of neurosis which lack neurotic symptoms *per se* but appear in distorted personality traits constituting 'character neuroses'.

(5) The psychoses share many symptoms with the neuroses and obey the same dynamic principles of symptom formation; but their causes are largely organic and/or hereditary. Psychotherapy therefore handles the neuroses by psychological, largely psycho-analytic, methods, but the psychoses by physiological methods. The incidence of neurotic and psychotic abnormality of personality is shown.

Having now clarified the principles of dynamic development, in the degree of detail and illustration and application possible in a book of this size, we can turn to understanding personality development with regard to a larger context—chiefly, on the one hand, the internal physiological conditions of the body and, on the other, the specific external problems presented by the culture pattern. But before this can be done the next two chapters must deal with advances in the description and exact measurement of personality that are necessary for making precise statements about the relation of personality to physiological and social variables.

MORE ADVANCED READING

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CHAPTER VII

THE PROBLEM OF EXACT PERSONALITY DESCRIPTION

1. THE INDISPENSABLE DESCRIPTIVE PHASE IN SCIENCE

THE generalizations so far achieved, both those about the role of heredity and those on dynamic learning and environmental action, have had to rest on observations at a clinical level of exactitude. Personality is there described by saying a person has or has not got certain symptoms or that certain personality characteristics, as described in terms of common speech, are or are not strongly developed.

The query 'What sort of a person is he?' may be answered with sufficient accuracy by such means to satisfy idle curiosity, or even to provide bases for checking broad clinical theories. But the growth of more penetrating theories and more refined predictions awaits the development of more precise means of defining a given personality at a given moment. An hypothesis or theory about personality formation is validated by the truth of its predictions about the way a given personality will develop and appear at a given moment. Consequently a theory can never be more exact than the methods of 'static description', i.e. of defining a personality at a given moment, that psychology has been able to develop at that time.

The older sciences, no matter how chaotic their earliest beginnings, have sooner or later developed a strong interest in systematic description and classification, which has preceded their further flowering. In biology, for example, there could not have been a Darwinian theory without the labours of such careful observers as Cuvier, Linnaeus, Hunter and Leeuwenhoek. In psychology there has been a perhaps too facile and premature theorization about personality without sufficient attention to the acid test of prediction and control. Amateur psychologists especially need to be reminded of the dictum of a famous physical scientist, Lord Kelvin, that all scientific advance depends on exact measurement. And exact measurement always connotes careful description, too, for we have to ask 'How much of *what?*'

When one considers how much time people spend in talking about one another, the business of description might be expected to have reached impressive technical perfection, but the blunt truth is that until a hundred years ago little advance had been made on the methods of classical times. Throughout historical times it has remained true that we describe people by the same logical devices as we have been using for describing things. That is to say, we have used either *qualities* or *categories*, which in describing organisms we call respectively, *traits* and *types*. At the risk of embarrassing the non-analytical reader we must pause to ask more precisely what we mean by traits and types. Some clear analysis is necessary here before we can advance to more exact treatment of the actual business of personality description.

2. THE MEANING OF TRAIT AND TYPE

If someone asks me what Mr. Jones is like, I may say that he is an unreliable, impulsive, unscrupulous individual; or I may simply say that he is a scoundrel. In the first case, I assign him extreme values in traits which everyone possesses to some extent. In the second, I say that he has the pattern of a certain type, category or section of humanity. Description by types is very old. Hippocrates and Galen classified men according to temperament into four types: melancholic, choleric, phlegmatic, and sanguine. Modern psychology uses such types as moron, schizophrenic, Mongolian imbecile, involutional melancholic, or extrovert. Later we shall see that descriptions by types and by traits do not constitute two distinct methods, but rather extremes of the same statistical procedure.

However, let us glance for a moment at the utility of type descriptions as we at present know them. It is clear that types can be of two kinds, which we will call *continuous types* and *species types*. In continuous types one type passes over into another without any sharp break. Thus we may speak of geniuses and idiots or highly intelligent and highly unintelligent types, but they are joined by the great body of average mentalities. On the other hand, when we deal with such a trait as colour-blindness we see distinct types of colour-blindness with very few intermediates. The matter may be illustrated more easily by well-known physical examples. Thus if we look at the animal kingdom we notice that although there is continuous variation of size within any one species there is a break between species either in size or in pattern (ratio of dimensions).[1] The great majority of psychological types, e.g. introverts-extroverts, cyclothyme-schizothyme (discussed later) are of the continuous variety, and the instances of species types that can be definitely pointed out at the present day belong mostly to the abnormal, e.g. Huntington's chorea, Mongolian imbecility.

Before one can use either types or traits as verbal coinage, it is necessary to make certain that such types or traits *exist*, not only as logical possibilities but also as facts of nature. We speak popularly of the trait of being intelligent, but more doubting and analytical psychologists pointed out some years ago that there might be several distinct varieties of intelligence and that until intelligence is proved to be a *functional unity* it is misleading to use a single term. Similarly, we must demonstrate that the pattern of trait elements which constitutes a type occurs with sufficient frequency in nature to justify making it a 'stopping point'. You *can* make a type out of one person, as when you say so-and-so belongs to the 'Napoleonic' or to the 'Rooseveltian' type, but it is generally absurd to create a practically empty category. On the other hand, it is true and useful to speak of a manic-depressive or of a religious type, because there is a sufficiently large group of persons manifesting the pattern in question.

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[1] The student who can afford time to get more precise ideas here, will notice that in fact species types are of two kinds—discontinuous types, where there is a break in the range of measurements, and true species types where, although the measurements may overlap, the patterns (ratios) do not. Thus swallows and sparrows might overlap (in their intra-species variation) in a great number of body measurements, making separation impossible on single measurements alone, but the distribution of patterns—e.g. the ratio of wing length to wing depth—would not overlap at all.

When Q-technique is employed (see p. 144 footnote) a species type is revealed by a lack of continuous distribution in the correlation coefficients, whereas a simple discontinuous type is revealed by lack of continuity in the distribution of the raw measurements themselves.

In regard to types there are really two problems. (1) To show that the parts of the pattern really do go together, and (2) to show that a sufficient number of people fall into the type to make it worth using. For example, psychiatrists today speak of a psycho-pathic personality, two elements in which are said to be moral irresponsibility and a charming, plausible manner. It is necessary to show that these go together, and then that there are enough cases to make the category a useful one for diagnosis.

In regard to traits, on the other hand, the main problem is that of establishing the functional unity of the trait, as discussed above with respect to the trait of intelligence. The various 'indications' of the trait (or 'trait elements') must be shown to go together as a single whole. If we divide behaviour in small enough sections we can arrive at reactions which are so specific, e.g. raising one's hat to a lady, jumping at the barking of a dog, that each constitutes a single act. The problem is now to discover how these 'elements' order themselves in larger functional unities. For example, there may be a trait of 'nervousness of disposition' which shows itself in many other indicators beside that of jumping at the barking of a dog.

The value of knowing these larger functional unities is two-fold. First there is an economy of description, for instead of the five and a half thousand words in the dictionary that offer themselves as labels for specific behaviour traits, we may find perhaps a few dozen major traits. But more important than this is the fact that we shall be dealing with the real structural elements in the personality.

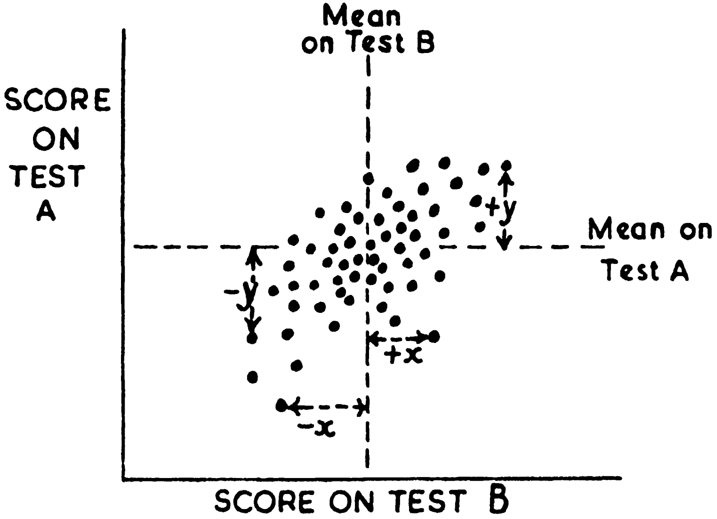
If, out of economy, we decide to use only the first dozen or so major traits in measuring and 'blocking in' the main outlines of personality, the picture will not be accurate in detail. Like a television picture or a tapestry there will be a certain coarseness, through the fewness of the threads; but the outlines will be intrinsically sound.

3. CORRELATION CLUSTERS AND FACTOR ANALYSIS

The method by which we show that various pieces of behaviour spring from the same source is much the same as that by which we show that a physical object is unitary. We call an object unitary when its parts move together, appear together and disappear together, and when a change in one tends to cause a change in all. Similarly, if we notice that a person who likes large groups also tends to be high-spirited and to be rather impulsive above the average, we may suspect that some common trait, which incidently has been called at various times extroversion, surgency, and cyclothyme tendency, manifests itself in these different elements of behaviour. To prove unitariness we need to show that a person who is high in one tends to be high in the other, and that the person who is low in one tends to be low in the other, too.

Unfortunately unaided human observation and memory, even that of the best clinicians, cannot always decide when there is a tendency for certain kinds of behaviour to go together. Psychologists' clinical observations have had to be aided by the statistician's invention of the correlation coefficient. The correlation coefficient is simply a device to show how well any two series of measurements go together. (See Diagram XIII.)

Anyone who hopes to gain any real understanding of psychological problems must pause to master what the correlation coefficient means. A correlation coefficient of +1·0 means that the two kinds of measurement go together perfectly. A coefficient very near unity (about +0·9) would be found between the stature or intelligence of twin pairs, whereas a correlation of +0·5 exists between the statures of fathers and sons. A coefficient of 0 indicates there is no relationship. Such a correlation might be found between the scores of a number of people respectively on a test of swimming ability and painting ability. Negative correlations, showing an inverse relationship, are less common in



$$r = \frac{\Sigma xy}{N\sigma_x\sigma_y}$$

Diagram XIII.—The Meaning of a Correlation Coefficient.

After measuring 218 young men on (*a*) a pencil and paper test of 'fluency of association' (see (3)) and (*b*) a rating by their fellows of their sociability or gregariousness, the experimenter plotted each person as a point with respect to his scores on these two co-ordinates (only a sample is shown here). When the correlation is positive the plot will be an ellipse elongated in the direction shown. When it is negative the long axis will run from upper left to lower right. When there is no correlation the swarm will be roughly circular. A correlation of +1.0 would require the points to fall in a straight line or narrow rod from lower left to upper right. In this case the correlation turned out to be —0.4. The student desiring detailed formulae for the correlation coefficient should see any standard text book (4).

abilities, but exist among temperament traits; for example, some negative correlation exists between sociability and size of reading vocabulary.

Now there is a useful mode of mathematical representation whereby the correlation between any two variables can be represented as an angle between two lines. Actually the cosine of the angle is made equal to the correlation. In this way a positive correlation will be shown by an acute angle; a zero correlation by two lines at right angle; and a negative correlation by an obtuse angle. By this means we can show in a diagram very readily the relationships between several variables at once. When a number of measured pieces of behaviour 'go together' a good deal, so that they may be considered substantially to form a unitary trait, they will reveal their unitariness by showing up as a cluster of lines in the diagram, like the ribs of a half-closed umbrella. (Diagram XIV.) A bunch of trait elements of this kind will be called a unitary 'surface trait', because superficial observation alone, without knowledge of underlying causation or structure, obviously indicates a single trait.

In the investigation of human abilities it was found that practically all are to some extent positively correlated, i.e. a

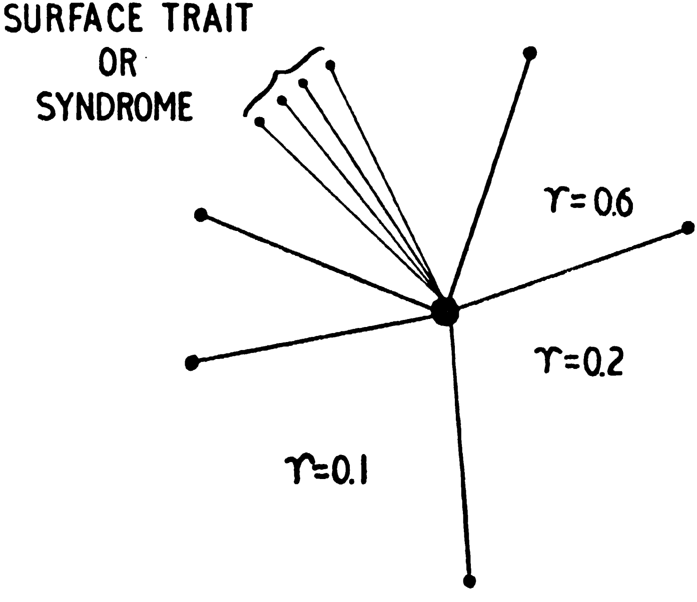


Diagram XIV.—Three Correlations expressed as Angles, together with a Correlation Cluster or Syndrome.

person who is above average, in school, at mathematics is more likely to be above than below average in English or even in playing tennis. However, some abilities cluster more closely than others and the method showed that, at least among children, we can speak of a unitary *intelligence* which shows itself particularly in ability to give correct opposites to words, ability to perceive analogies, score on a classification test, etc. It also showed that there were special groupings in the realms of numerical ability, spatial ability, logical reasoning, and word fluency in addition to the general clusters due to general intelligence.

This precision research in human abilities which took place during the first quarter of the present century also led to a new statistical notion—that of mathematical factors—which we shall find essential in our description and measurement of personality generally. Consider the three correlations shown in Diagram XV. If one were to cut out these angles with scissors he would find that when the lines OA, OB, and OC are put together the figure will not lie on a flat surface. In other words, correlations can be found—and indeed are the rule rather than the exception—in which the angles between three or more variables cannot be represented on a plane as in Diagram XIV. If we are to represent them as in Diagram XIV, we can do so only by a projection which loses some of the truth of the solid.

If the reader likes to experiment with bits of paper, he will find not only that some angles cannot be represented in two dimensions but that they cannot even be represented in three. It is possible to find correlations among four or five variables which force one to make a representation by a model in four dimensions—a model which only a mathematician could conceive.

What the factor analyst means by factors is nothing more than *the dimensions of the space required to contain a certain set of correlations when they are spatially represented.* If the correlations are of such magnitude that they can all be represented in the flat, as in Diagram XIV, it means that the co-variation manifested in these variables can all be expressed by only two truly independent sources of variation. If on the other hand,

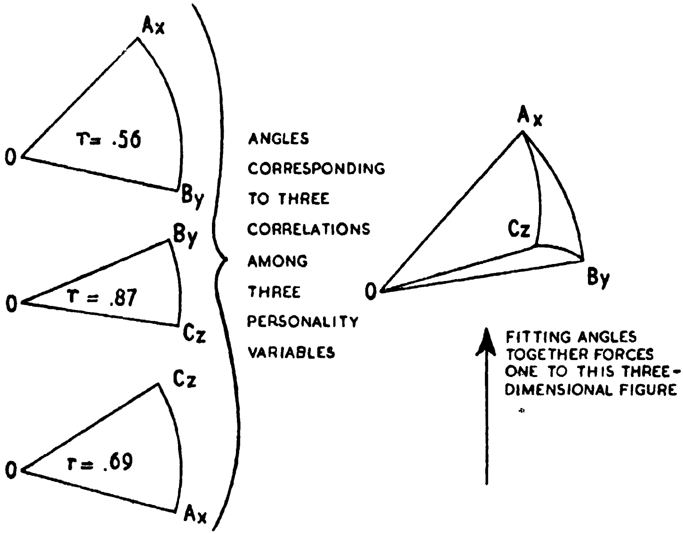

Ax
0
r = .56
By
By
0
r = .87
Cz
Cz
0
r = .69
Ax
ANGLES CORRESPONDING TO THREE CORRELATIONS AMONG THREE PERSONALITY VARIABLES
Ax
Cz
0
By
FITTING ANGLES TOGETHER FORCES ONE TO THIS THREE-DIMENSIONAL FIGURE

Diagram XV.—Representation of Correlations and Correlation Clusters by Angles.

the correlations force us into four dimensions to contain the spatial model, then it means that the directions of variation present in these variables requires some four independent kinds of variation to account for them. In short, if we have a number of measurements, mental or physical, we can find out how many truly independent influences are at work behind the scenes, accounting for their variation, by calculating correlations among them and factorizing them.

Let us illustrate first by a simpler physical example. Cureton measured a variety of performances in physical training, e.g. running speed, strength of grip, etc., for a large group of young men and found by correlation three factors. Examination of the test measures in which each was prominent revealed that they corresponded intelligibly to functionally unitary muscle groups—namely, lateral muscle strength, endurance of limb muscles and endurance in arm extension muscles. Similarly, the application of factor analysis to mental abilities has shown, in

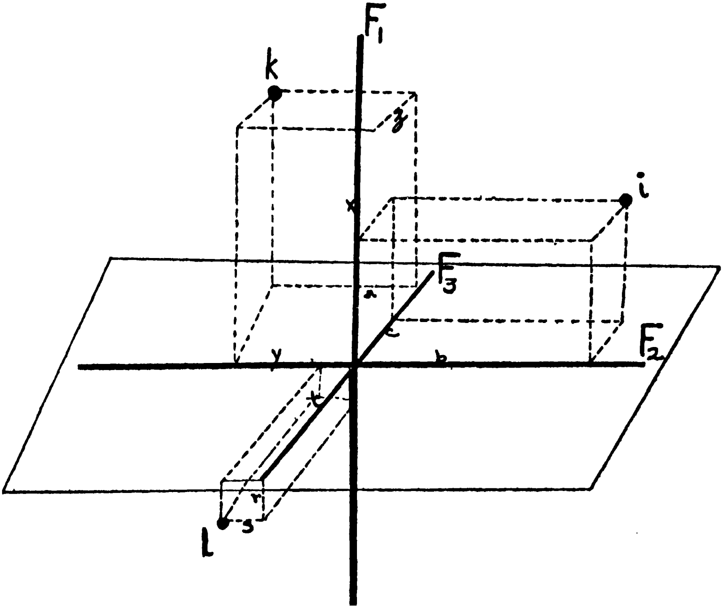


Diagram XVI.—Representation of Three Individual Personalities, i, j and k, by Individuality of Position Projections on Three Factors.

addition to a general ability factor running through all intelligent 'forms of activity', an ability factor in verbal material, another in spatial thinking, a smaller one in numerical performances and another (incidentally possessed more by men than women) in those intelligent performances which also require explicit, logical, deductive steps.

4. SOME MAJOR ABNORMAL PERSONALITY PATTERNS

Only in the past ten to twenty years has the factor analytic method[1] been applied to the total personality, in studies beginning with the pioneer work of Burt in temperament and Webb in character. One of the largest source traits[1] to emerge here—source trait A, or cyclothyme-schizothyme tendency—is at once recognizable as underlying a syndrome which has long interested

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[1] The student interested to gain more command of the factor analytic method, at which we can only pause for a glimpse here, should read Burt's *Factors of the Mind,* Thomson's *Factorial Study of Human Ability,*

[1] From this point on we shall refer to factors as *source traits* and to the particular clusterings of trait elements resulting from the operation of factors as *surface traits* (2), (3). If three or four variables, say reading speed, accuracy of multiplication, literary judgment and size of vocabulary tend to be associated (i.e. to vary together as we compare different individuals) because (*a*) they all depend on intelligence, (*b*) they all vary together with length of schooling, (*c*) they are all at a better level in the person who is prone to apply himself steadily in whatever he does, we shall find on correlating and factorizing that three factors emerge. Each one of these source traits produces some positive correlation among the measurements and the net result of all three will be to produce quite high intercorrelations, such as will result in the four 'trait-elements' forming an obviously outstanding cluster or surface trait. A *surface trait* is thus usually the result of two or more *source traits* operating simultaneously to cause marked common variation.

Here only two factors are taken, each highly loading a, b, c, and d.

Thurstone's *Multiple Factor Analysis*, or Holzinger and Harman's *Factor Analysis*.

To recapitulate: Factor analysis seeks to replace scores on a large number of tests or personality variables by measurements on a few basic factors or source traits. It does so by intercorrelating the trait element variables and finding the minimum number of independent variables required to account for the co-variation, i.e. the dimensions of space needed to accommodate the correlation model. Any performance P has loadings a, b, c, etc. on the factors F_1, F_2, F_3, etc. corresponding to the projections of the point P on the co-ordinates.

$$P = aF_1 + bF_2 + cF_3 \dots zFn$$

Thus, when we know the endowment of a particular person *i* in F_1, F_2, F_3, etc. we can predict with a certain degree of accuracy his reaction Pi in the situation defined by a, b, c, etc. These last—the loadings—can also be considered as 'situational indices'.

The correlation coefficients on which factor analysis works have commonly been obtained by correlating tests on a large group of people. This is called R-technique and yields *common traits*, i.e. traits of such a pattern that everyone can be said to have *some* endowment in each. Later Stephenson suggested the term Q-technique for the procedure of *correlating persons*, which Burt and Thomson had also tried, and which he showed yielded *types* among persons. See (1).

More recently the present writer has suggested the application of P-technique, in which one takes measures on a number of variables on *one* person, from day to day, correlating to reveal common fluctuations. The factors from P-technique will primarily be *unique traits*. That they will generally resemble corresponding *common traits* is already shown by the practical applications of this method by Baldwin, Luborsky, and the present writer.

psychiatrists. To understand this we must digress to a brief review of the abnormal patterns of personality. Psycho-pathology, as we have seen in Chapter VI, recognized broadly two kinds of mental disorder—psycho-neurosis and psychosis. Psychosis is the more severe type of mental illness, but ultimately it is considered to differ in kind rather than merely in degree, from psycho-neurosis. The neurotic may be very unbalanced and irrational, but typically, in spite of his mental distress, he knows who he is, where he is, and what irrational acts or feelings afflict him. The psychotic, on the other hand, has parted company altogether with reality.

Among the neuroses are some four prevalent 'syndromes'—as the psychiatrist calls the broad surface traits of the abnormal, the correlation of the parts of which are primarily established by clinical experience rather than statistics. These syndromes are (1) conversion hysteria, in which the patient shows paralyses, amnesias (forgetting), etc., for which no physical cause can be found; (2) Anxiety hysteria, in which the patient suffers from a constant irrational, unspecified dread or a fear of specific objects which he cannot justify; (3) Obsessional neurosis, in which the individual has a compulsion to repeat some trivial, inconvenient or even immoral act in spite of his recognizing its irrationality, and (4) neurasthenia or chronic nervous fatigue, characterized by abnormal tiredness, vague pains, upset of pulse, breathing, digestion, etc. Probably about a fifth to a tenth of the populations suffer from one or another of these neuroses to a just recognizable degree, or more.

The classification of psychotic syndromes has presented a more difficult task, for insanity is a many-headed monster and psychiatrists have only recently come to reasonable agreement in describing it. In the first place, there is a whole set of *organic disorders* springing from demonstrable damage to the brain by blows, poisons and germ action. Among these are general paralysis from syphilis, the confusional insanities which overtake the thirst-tortured shipwrecked sailor, the insanities of lead, alcoholic and other poisonings, and certain forms of epilepsy. In the contrasting group of *functional psychoses* there has been recognized, since the clinical insights of Kraepelin and Bleuler

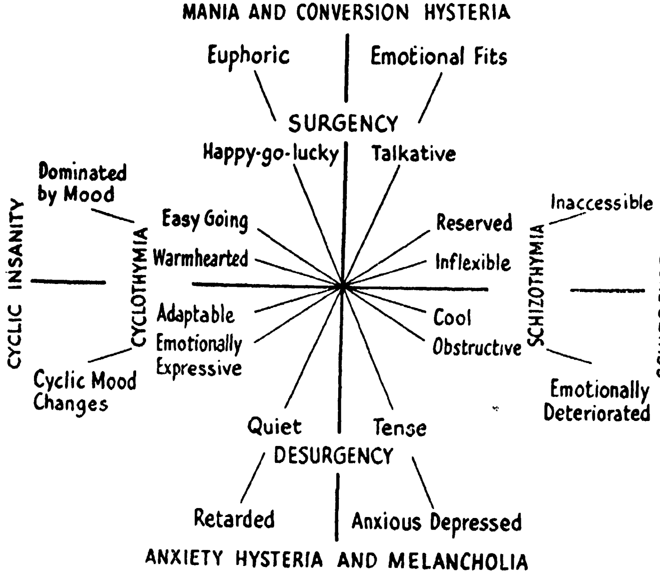

Diagram XVII.

just before the opening of this century, a dichotomy into what are now called schizophrenic psychoses and manic-depressive psychoses. The schizophrenics, of which what used to be called dementia praecox is the central example, show a pattern principally of withdrawal from social contacts and from realistic interchange with the environment. The schizophrenic appears to retreat into phantasy, becomes obstinate or alternatingly indifferent and hostile to attempts to make contact with him. His conversation is illogical and shows splitting (whence the term schizophrenia) or disharmony between the ideas and the emotional expression accompanying them. He talks to imaginary voices, suffers a variety of hallucinations and entertains bizarre delusions about himself and his associates. In one form of schizophrenia, called paranoia, these delusions are systematized —generally about theories of persecution or grandeur—and may constitute the only signs of abnormality.

By contrast, the manic-depressive shows none of this cold withdrawal, nor the general disintegration of ideas that goes with it. Primarily, his is a disorder of mood control. He experiences the depressed moods of normal people in exaggerated degree and without adequate provocation. From the mood he may, in the course of weeks or months, swing into a manic base elation and exaltation, in which he cannot be restrained from over-activity and meddlesomeness without provoking violent opposition. In fact, it is these roughly cyclical swings, from depression to manic excitement, or from either of these in and out of normal periods, that have given manic-depression the synonymous label 'cyclical insanity'.

Now the psychiatrist Kretschmer (5) pointed out that the contrast existing between the withdrawn, emotionally obscure, opinionated schizophrenic and the sociable, directly emotional but cyclically unstable manic-depressive exists to a lesser degree also within the range of 'normal' people. To the shy, aloof, rigid temperament he gave the name *schizothyme* and to the open, emotional, unsteady temperament the name *cyclothyme.* These have already been mentioned in connection with relations of physique to temperament, but here we need to point out only that factor analysis has yielded, as one of the largest factors in normal personality variables, a factor 'A', corresponding remarkably well to that syndrome which clinical psychology infers to be one of the most important differentiators of personality. The factor in normal people 'loads' principally the following, i.e. the following show positive correlations with one another in all possible ways.

Cyclothyme (Positive A[1] Factor)		Schizothyme (Negative A Factor)
Easy-going	v.	Obstructive, Cantankerous
Adaptable (in habits)	v.	Inflexible, Idealistic in face of expediency
Warmhearted	v.	Cool and indifferent
Frank	v.	Close-mouthed, secretive

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[1] Schizothyme traits are the polar opposites of those in the cyclothyme. Hence each trait element is also presented as a pair of polar opposites, e.g. adaptable as opposed to inflexible.

Emotionally expressive v. Reserved
Trustful, credulous v. Suspicious, "canny"
Impulsively generous v. Close, cautious
Co-operative v. Fault-finding
Subject to personal emotional appeals v. Impersonal
Humorous v. Impassive

This list gives us an initial framework for defining and recognizing a major source trait, but fuller understanding of the nature of such a source trait will reveal that it influences to a slight extent almost every aspect of personality and to a powerful extent certain personality manifestations not listed above, notably artistic taste, religious experience and even physiological reactions.

The chief source traits, of which the above isperhaps the most salient example, will be reviewed in the next chapter.

5. SUMMARY OF PRINCIPLES OF PERSONALITY DESCRIPTION

A single source trait such as the above, properly delineated, understood and measured, will enable us to predict a surprising amount about a given person. Indeed, the success of fashionable typologists, such as Jung's Introversion-Extraversion labels, which have sometimes monopolized the thought of injudicious psychologists, has been possible only for this reason. But, as a famous churchman has reminded us 'In judging of a man's character it is not fair to sum him up as a gambler, or a miser, or a wine bibber. He may be what we call him, but he is many other things besides; the label is not descriptive of the man but only of one corner of him.'[1] Actually the source trait, as defined by factor analysis, affects more than a corner; it suffuses the whole field of human behaviour, but it is only responsible for a fraction of the determination of any corner of that field.

The main points of this chapter may now be summarized.

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[1] Dean Ralph Inge, *Labels and Libels*. London: 1929.

(1) Correlations of trait-elements of behaviour reveal immediate clusters, which may be called surface traits, and also deeper independent sources of variation—factors—which we may call source traits.

(2) Any particular habit of behaving in a certain situation 'j' (which we may measure as a trait element, P_j) will have a strength (for an individual 'i') which can be estimated by the equation:

$$P_{ij} = aF_{i1} + bF_{i2} + cF_{i3} \ldots + zF_{ij}$$

in which F_1 etc. are the source traits or factors involved and (F_{i2} is the person's i's endowment in F_2, and so on) a, b, c, etc. are 'situational indices' (loadings found by factor analysis) defining the extent to which that particular situation stimulates the personality factors concerned. Thus a person's honesty in a certain situation may be in part a function of his general character stability, (F_1 described as factor C in the next chapter) in part a function (negative loading) of his acquisitiveness (F_2), in part of his timidity (F_3) and in part of some specific training in that situation (F_j). This analysis reminds us that a given piece of behaviour rarely involves only one motive or temperament trait. Also it reiterates that a relatively small number of source traits define individual endowment differences over practically the whole field of human behaviour (the innumerable realm of trait elements).

(3) Source traits may be common traits or unique traits, according to whether they are established on R- (and Q-) technique correlations on the one hand or P-technique correlations on the other. But (*a*) there is generally not much difference in the outlines of these traits, the average unique trait being the common trait, and (*b*) description by common traits is in any case not incompatible with doing credit to the uniqueness of the individual. For the individual is a unique combination of endowments in common traits.

How common trait endowments succeed in conferring upon the individual a unique personality can be seen in Diagram XVI. Here the individual i's endowment is a or (F_{i1}) in F_1, b or (F_{i2}) in F_2, c or (F_{i3}) in F_3. Similarly the person k has projections x, (-) y, z and the person l has loadings (-) r, (-) s, t in these same three factors.

If these factors were respectively general intelligence, cyclothymia-schizothymia and general character stability, the rough verbal descriptions of these three personalities would run as follows: i is a fairly intelligent and more than averagely integrated person of a decidedly cyclothyme, easy-going temperament; k is a highly intelligent and stable but very schizothyme, withdrawn individual; l is a somewhat dull, slightly schizothyme but highly unstable and unreliable person.

If the twelve major personality factors (Chapter VIII) were taken into account, each person would be represented by a point located in twelve dimensions. The uniqueness of the personality, by this convention of representation, can be read as a uniqueness of spatial position.

(4) In addition to the massive source traits of personality constituted by general factors, spreading over all realms of behaviour, there are narrow source traits specific to a particular situation. Indeed every trait element, tied to a particular situation, has something in the response to it which cannot be predicted from general source traits above.

(5) Clinical observation, notably of neurotic and psychotic behaviour, leads to the recognition of syndromes which in the main prove to be the same as those detected by correlation techniques among normals. This illustrates that in some respects, at least, the abnormal can be regarded as an extreme of a normal type and that, in psychology generally, study of abnormal exaggerations is a profitable way of approaching those phenomena in normal people which are too smoothly organized to be easily picked out. The psychiatrist's syndrome or type is essentially a correlation cluster or surface trait (except in the rare case where species type patterns exist). Consequently, since surface trait and source trait better correspond to statistical formulations, the ambiguous term 'type' is superfluous and we may best proceed to the measurement of personality in terms of surface traits and source traits. As we shall see later, source traits are generally more convenient, being fewer and corresponding better to underlying temperamental, ability and dynamic realities.

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CHAPTER VIII

THE MEASUREMENT OF PERSONALITY

1. PRINCIPLES OF MEASUREMENT

TO some people the very idea of measuring personality seems faintly sacrilegious, and they are inclined to deny its possibility along with its desirability. The many able psychologists who have been flung back, baffled and dismayed, in their attempts to obtain valid measurements, know, however, that the secret is unlikely to be revealed to anyone without a degree of enlightenment which would make unwise and irreverent use improbable. Certainly the problems to be faced are extremely subtle ones and only the fact that we at present stand merely on the fringe of their complexity justifies an attempt to deal with the subject in a work of this size.

Basically the psychologist's position is that mental, like physical, phenomena, obviously vary in amount or strength and that since they vary in this manner the way is open, at least theoretically, to measure relative magnitudes, and ultimately to arrive at units of measurement.[1] The measurements will not be couched in units of such conceptual simplicity as those of the physical world, nor will measurements have the stolid fixity we expect in dimensions of inanimate objects. To use them meaningfully and to any practical effect it is going to be necessary to know something about the way in which functional unities grow and change. But the absolutely basic necessity is that the measurements should refer to the degree of the individual's possession of traits that have first been definitely *established as functional unities* in the manner described in the previous chapter. The present chapter is bound to be a rough and inadequate attempt to live up to its title because we do not yet have all the research knowledge implied. We have, indeed, gained only a first definition of a dozen or so source traits and a preliminary glimpse of their origins and relations to various clinical and experimental findings previously known in psychology. The present chapter will deal with trait measurement at a given moment. The problems of trait fluctuation and interaction, of origin and development belong elsewhere.

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[1] This position, recently stated afresh by Thorndike, was well stated in the early days of psychology by Sir Francis Galton: 'I do not plead guilty to a shallow view of human nature, when I propose to apply, as it were, a foot-rule to its heights and depths. The powers of man are finite and if finite they are not too large for measurement.'

'Measurement' is used here in a very broad sense. It rests essentially on *three* distinct possible modes of observation open to the psychologist, only one of which is objective in the sense of a physical measurement, as follows:

1. *Life Record data or Behaviour Ratings in situ.* Here an outside observer observes the individual in his normal life situations, or in specially staged situations which, as far as the individual is concerned, are regarded as part of everyday life. Thus the individual might be rated on sociability, according to his friendliness to strangers whom he meets during the day, or a number of special situations might be arranged in which he walks into rooms in which a 'standard stranger' with standard responses has been introduced. The same kind of data may be obtained from compiling 'life record' material, concerning standard situations which naturally recur in life, e.g. frequency of involvment in automobile accidents, amount of contributions to charity, number of books read in a year.

Behaviour ratings vary from the most unreliable of all devices—as when a single, biased rater rates someone whom he scarcely knows on a trait that has never been defined to him—to the most valuable, precise and realistic of measures when used under properly controlled conditions. By the latter[1] we mean such improvements as averaging the scores of many observers, employing rankings, defining the trait-elements operationally, employing standard situations and time sampling, i.e. recording frequencies of certain actions within spaced time intervals of observation, the same length for all the individuals rated. The interview falls in this category, but is unsatisfactory because it depends too much on inferences and intuitions from behaviour, in a narrow situation rather than in a wide range of behaviour situations, and on a sample of behaviour which is altogether too brief.

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[1] For a survey and discussion of personality measuring techniques see Symonds, P. M., *Diagnosing Personality and Conduct.* New York: 1931.

2. *Questionnaires and Self-Ratings.* Here the individual is asked to reply to questions about himself, his actions or his feelings. In the last, reliability is even *theoretically* impossible, because he cannot compare other people's consciousness with his own. In the former, he is the most biased of observers. He may not wish to answer truthfully and is so placed as to be unable to do so even if he would. Nevertheless, where subjects are intelligent, and altruistically concerned to co-operate, the method is valuable, i.e. it works better with a university student questioned about his artistic tastes than with a criminal cross-questioned about his reliability in money matters. The prevalence of questionnaires in current applied psychology should not be taken as an advertisement for their scientific respectability.

3. *Objective Tests.* By a test we mean something which is not the trait situation itself but a referrent for it. Thus an intelligence test is a pencil and paper situation designed to predict reactions in various intelligence-demanding situations of everyday life, just as a physiological test on a pilot in a doctor's consulting-room may be designed as a test of his ability to withstand high altitudes. The test thus has the advantage over most behaviour rating situations that it can be brief and readily standardized, while any necessary apparatus is transportable. It has the disadvantage that not one test in a hundred tried for personality measurement proves to have any predictive value!

Psychometrists normally subject every psychological test measurement to examination by two searching criteria—*reliability* and *validity*. By correlating the first measurement of any psychological function (i.e. the range of measures in a large group of people) with a second measurement of it on the same group, they obtain a *consistency* or *reliability coefficient* showing how well the test agrees with itself. A test which cannot agree with itself is not likely to agree with anything else; reliability is basic. A measuring device with a good reliability may nevertheless have a poor validity, i.e. be a poor measure of what it is setting out to measure. For example, a speedometer may invariably and consistently, i.e. reliably indicate fifty miles per hour when I am doing forty. Normally the validity of an objective test or questionnaire has to be tested by correlating its measurements with behaviour ratings of whatever behaviour it purports to measure.[1] Thereafter, if the validity coefficient is high, we should standardize the test by testing a large, typical sample of the population, to discover what scores mark off the uppermost 10 per cent, 20 per cent and so on of the population. In short, the measurement of personality source traits proceeds by the same principles as those established in psychology through experience of ability measurement.

2. THE MEASUREMENT OF EMOTIONAL INTEGRATION OR CHARACTER STABILITY

(Factor C)

Of all the measures of personality in which applied psychology is interested none is more eagerly demanded than a measure of character. That some sort of general factor affecting conscientiousness, dependability and emotional stability actually exists was shown by the early work of Webb. Again, Hartshorne and May (4) tested children's honesty in situations where the latter were asked how many books they had read, or were given opportunities to cheat in examinations or to return wrong change from an errand. The correlations again showed some general factor, but indicated that a great deal was specific to the situation.

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[1] To be precise, it has to be correlated, *not* with a raw score of ratings of behaviour (time samplings, records of real life behaviour), but with an estimate of the *pure factor* underlying the various behaviour items and which can be made from the ratings of them. Thus if we have an objective test which is supposed to measure the cyclothyme-schizothyme temperament factor (Factor 'A')—say the tachistoscopic test of tendency to perceive colour rather than form, as devised by Kretschmer,—we should proceed to correlate the test measurements with the principal factor extracted from several carefully controlled ratings (of a large group of people) on the various traits listed above on pages 147-8.

There is now abundant evidence (2) of a unitary trait manifesting itself in emotional stability, perseverance, self-control, and trustworthiness (and negatively in general emotionality, fickleness, neuroticism and delinquency). In questionnaire responses it shows itself in the correlation of answers to such questions as:

1. Is your health unpredictable so as to force continual revision of your plans? *Yes.*
2. Are you uncontrollably afraid of some particular types of animal? *Yes.*
3. Have you ever been a sleep walker? *Yes.*
4. Do you often feel that modern life has too many frustrating situations? *Yes*

The answers in this case are in the C minus direction, i.e. in that of low emotional stability.

All the evidence points to this source trait being (in its negative aspect) one of deep-seated maladjustment and lack of integration of drives within the personality (2). At its extreme it becomes either neurosis or delinquency, and constitutes that disorganization of personality which, being the common feature of all kinds of neurotic syndromes, may best be called general neuroticism.

Objective tests (4) show a factor here in such specific test measures as cheating, overstatement, conscientiousness and accuracy in an assigned task and resistance to suggestion. Again, if a test of attitudes and interests is readministered to a group after a few days, those who obtain a higher difference score, i.e. whose sentiments and interests have fluctuated most, show also a higher behaviour rating on emotional instability. Experiments with neurotics at a mental hospital and rejects from active service in the army show a considerable correlation of this general neuroticism factor with tests of sheer persistence against fatigue or discomfort and (negatively) with susceptibility to hypnosis and with measures of sway on a suggestibility test. In the latter the subject, standing upright, is repeatedly told 'you are falling forward' and his movement in a forward direction is measured by an exact instrument. Nevertheless, an adequate battery of such tests, reliable enough for administration in all sorts of practical situations, e.g. clinical diagnosis, employee selection, cannot yet be confidently offered.

Beyond generalizing that this source trait is one of character or dynamic integration, we cannot at present venture interpretations. Like the biologists studying vitamins, we know our factors first by their effects and do best to show restraint by labelling them A, B, C, etc. until their structure is truly known, instead of invoking confusion by rash hypotheses. Hence, just as the cyclothyme-schizothyme trait is labelled 'A' the present integration factor is labelled 'C'. Factor 'B' appears to be no other than the general ability or intelligence factor demonstrated as 'g' in cognitive performances, but here manifesting itself in wider circles of personality modification.

'B' is mentioned here for other reasons than alphabetical contiguity, namely because it operates to a considerable extent, in the realm of character. That delinquency is correlated with low intelligence has long been known; but that intelligence would prove so significantly correlated with such trait-elements as conscientiousness, reliability and self-control was scarcely expected. Seemingly, the intelligent person learns more quickly and completely the lessons of character formation just as he does the classroom lessons of a more intellectual nature. Certainly, when we come to predict such qualities as reliability and self-control we need to take into account not only the individual's endowment in source trait C but also, though to a lesser extent, his endowment in B or general intelligence. The student interested in more precise work here should note (2) that there is evidence also of a third source of variation in the character realm, through factor G.[1]

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[1] In personality description it is convenient to adhere to the convention of expressing ability factors by small letters and personality factors by capitals.

3. SURGENCY-DESURGENCY OR HYSTERIA-DYSTHYMIA (Factor F)

The older concept of extraversion-introversion deals with what is now almost certainly best regarded as only a surface trait—and a rather confused one at that, constituted by two roughly bounded diametrically opposed clusters. In Diagram XVIII above we have illustrated the compositeness of these clusters in terms of two underlying factors, but a more exact analysis would require attention to three major source traits: A (Cyclothyme-schizothyme), F (Surgency-desurgency) and E (Dominance-submission). Let us examine first the surgency-desurgency pattern, for it is one of outstanding importance in understanding personality differences.

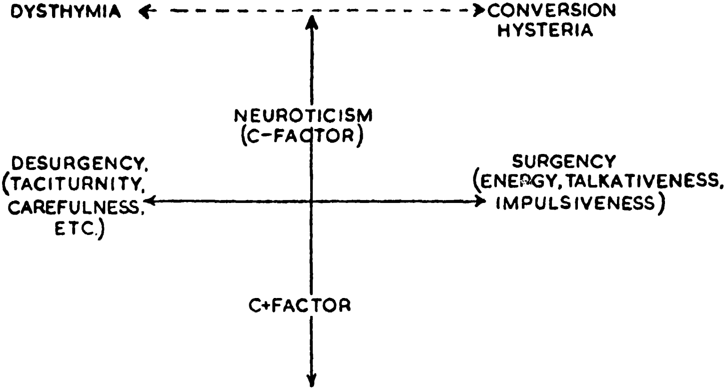
DYSTHYMIA
CONVERSION HYSTERIA
NEUROTICISM (C-FACTOR)
DESURGENCY, (TACITURNITY, CAREFULNESS, ETC.)
SURGENCY (ENERGY, TALKATIVENESS, IMPULSIVENESS)
C+FACTOR

Diagram XVIII.—Analysis of Conversion Hysteria and Anxiety Hysteria Syndromes into Personality Factor Endowments.

Surgency-desurgency, or F, loads the following traits:

Cheerful	v.	Depressed, pessimistic
Sociable, responsive	v.	Seclusive, retiring
Humorous, witty	v.	
Talkative	v.	Taciturn
Placid, but expressive	v.	Worrying, unable to relax
Resourceful, original	v.	Slow to meet the situation

Adaptable	v.	Bound by habit
Trustful, sympathetic	v.	Suspicious, brooding

There is much evidence that this trait in its extreme positive form is that which is common to hysteria and mania, and, in its lowest endowment, comprises what is common to anxiety neuroses and agitated melancholia. Eysenck (3) at the Maudsley Mental Hospital found the factor among neurotics, loading such symptoms as depression, absence of conversion hysteria symptoms, anxiety, nightmares, apathy and retardation (slowness of thought and action), and called it Hysteria-Dysthymia. Neurotic individuals, however, share, in the first place, a negative endowment in the C factor, i.e. they are low in general integration. Consequently as shown in Diagram VI, hysteria-dysthymia refers either to the two surface traits (syndromes) of opposing types of neurosis or to the dimension of Surgency-Desurgency as it occurs under the abnormal conditions of pathologically low general integration.

In questionnaire responses we find a corresponding correlated set of items, indeed the same F factor, loading affirmative responses to:

1. Do you like to be in a situation with plenty of excitement and bustle?
2. Do you enjoy a lively party more than an evening with a solitary hobby?
3. Are you well described as a happy-go-lucky, nonchalant person?
4. Are you a fairly talkative person?

In tests, relations have been found between surgency (or the extreme of conversion hysteria) and high ratio of speed to accuracy in various performances, high fluency of association, low aspiration level and high flexibility of aspiration level, high enjoyment of humour and low verbal ability (vocabulary). Aspiration level tests involve some skilful performance in which the subject is asked to state beforehand what level he expects to attain and is allowed after each trial to adjust his aspiration (expectation) level for the next trial. Hysterics (surgents) pitch their goals lower than do dysthymics (desurgents) and are prepared to modify them more readily in the light of their current successes and failures, i.e. they are more flexible (3).

Fluency of association is a well-marked factor in mental tests loading success in performances, such as free association to ink blots, making as many drawings as possible in a minute, inventing rhyming words or words beginning with a certain letter, which involve primarily a ready 'rising up' of associations. It is unrelated to intelligence and there is some doubt as to whether this glib rising up of associations is a positive character of mental energy or a mere lack of the inhibitions possessed by less fluent individuals. It is not surprising that the surgent individual, with his cheerful sociability, his ready word of wit and his easy impulsiveness should be high in fluency, indeed it was the clinical study of surgent behaviour which first suggested that fluency might be the key test to it (2).

What is surprising, at first sight, is that though the surgent individual tends to be high in fluency, he also tends to be distinctly below average in verbal ability (v factor) which appears as breadth of vocabulary and familiarity with style and grammar. Two recent studies[1] [2] of verbal ability in relation to personality show that v is positively related to schizothyme tendency and to desurgency (dysthymia). Grace of style, the skilled and loving use of words are seemingly the consolation of the introvert—for the introvert surface trait, we have pointed out, is largely a combination of the source traits schizothymia and desurgency. That sensitive withdrawal and melancholy moodiness are the companions of verbal ability will not surprise anyone familiar with the lives of the poets, but it may fit badly into the ideas of modern teachers and learning theorists who have supposed that the child who talks the most will achieve the best command of language.

There are good grounds for concluding that surgency-desurgency is the axis along which the cyclothyme individual pursues his cyclic oscillations. In P-technique (see Chapter VII) studies it has been found that level of fluency and other measures of surgency, including the size of handwriting and the tendency to daydream in the future rather than the past, are high when the individual is cheerful, talkative, and impulsive and low when he is depressed and anxious. This, of course, is compatible with factor F being entirely independent of (at right angles to) factor axis A (see Diagram XVIII). On the other hand, there is evidence that the person's average level of surgency is partly hereditarily determined.

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[1] Wells, F. L. Verbal Facility: Positive and Negative Associations. *Journal of Psychology*. 23, 3–14, 1947.

[2] Cattell, R. B. Personality Traits Associated With Abilities. *Journal of Educational Psychology*. 36, 475–486, 1945.

4. DOMINANCE-SUBMISSIVENESS (Factor E) AND SENSITIVE EMOTIONALITY-HARD POISE (Factor I)

Because of the obvious role of dominance-submission in all sorts of social interactions psychologists made many observations on dominance (or ascendance) as a personality variable long before it was established as a unitary trait. Exact research shows a definite source trait loading the following trait-elements:

Self-assertive, confident	v.	Submissive, unsure
Aggressive, pugnacious	v.	
Extrapunitive	v.	Impunitive, Intropunitive
Vigorous, forceful	v.	Meek, quiet
Wilful, egotistic	v.	Obedient
Elated but not humorous	v.	
Adventurous	v.	Timid, retiring
Insensitive to social disapproval	v.	Tactful
Sociable, but not conventional or social	v.	Less interested in group activity

In questionnaire data we find an equally defined positive correlation among the following answers to the following questions:

1. Are you given to making smart, self-assertive remarks at the expense of others (who sometimes deserve it)? *Yes.*

2. When you disagree with anyone in an argument ar you generally willing to bet good money that you ar right? *Yes*
3. Have you ever pulled down notices that forbid you t do this and that? *Yes*
4. Do you generally make a point of saying a word or tw to the speaker or whoever is the important perso at a reception to which you are invited? *Yes*

Factor E is a hardy source trait which reappears, more consistently recognizable than most, in a variety of psychologica climates. In quite young children it manifests itself as bullyin disobedience to authority, social non-conformity and lack o respect for others' property (a suitable temperament pattern o which to graft a communist rationalization in a capitalist countr or a capitalist belief in a socialist community!). Jenkins (2) ha revealed it as a special pattern among delinquencies (robbery destructiveness, absence of furtive stealing, active homosexuality) while Maslow (5) has clearly demonstrated the correlation cluster in chimpanzees (initiates most fighting, preempts limited food supply, mounts subordinates regardless o sex).

No good objective test has yet been found for this trait presumably because it is so purely social in character. Nevertheless, tests of change of opinion under authority, and perseveration tests (see below) as well as some measures of physica vigour show moderate correlations. There are some suggestion of relation to body build (Chapter II), though experiment with rats (Chapter II) show that environment rather tha heredity has a large role in the production of dominanc behaviour.

In a Christian community, designed for inheritance by th meek, dominance is bound to encounter an increasing inhibitory atmosphere. This frustration may account for some of th embittered features (quarrelsomeness, vindictiveness, extrapunitiveness) which seem to appear more definitely in the patter with adults than with children.

One of the most subtle, yet very powerful (in terms o contribution to personality variance) source traits can at present only be defined by the descriptive title 'sensitive, imaginative emotionality—versus—rigid, tough poise' and is referred to by the label Factor I. It shows itself in the following forms of behaviour:

Tenderhearted, soft	v.	Cynical, tough
Sensitively sympathetic	v.	Hard boiled
Emotionally dependent	v.	Independent
Introspective, imaginative	v.	Unaffected by 'fancies'
Intuitive	v.	Logical, exact, believes in logic only
Gregarious	v.	Self-sufficient
Neurotically 'jumpy'	v.	Poised, stolid
Infantile	v.	Mature emotionally
	v.	Smug.

The self-ratings to be associated with this are not certain, but tentatively we may conclude that the individual highly endowed with I factor reports himself (or herself) as being easily startled or distracted, sensitive and squeamish, e.g. over snakes and beetles, and having the feeling that he (or she) uses up more energy than most people in getting things done. The most likely identifications of this source trait are with hyperthyroidism or with that balance of hormones which determines femininity as opposed to masculinity. It might be mistaken for neuroticism by superficial resemblances, but is certainly an independent factor, possibly tied up with that neurotic-like sensitivity which characterizes the intuitive, delicately imaginative artist.

5. ERGIC RIGIDITY, A POSSIBLE SECOND ORDER FACTOR

In quite normal people it sometimes happens that an older reaction persists when a newer, more adapted one is intended. For example, when speaking in a new language you may slip into a word from the old or when playing table tennis you may persist in a stroke used on the tennis court. The tendency to repeat a process maladaptively can also occur in the sensory field, as when one hears the noise of train wheels for hours after a long journey is ended. Such *perseveration*, as it has been called, is quite prevalent among psychotics, e.g. the schizophrenic may sit for hours repeating a certain movement or phrase. It has long been recorded by psychiatrists. We now realize that there are several mutually unrelated forms of perseveration, but one of them, to which the term *disposition rigidity* or *ergic rigidity* has been given, seems to be an important index of temperament.

Disposition rigidity is measured by tests in which the individual tries to perform an old task in a new way. For example, a measure can be obtained by dividing the number of times per minute in which he can write his name in the usual way by the number per minute when he writes his name beginning with the last letter. The hypothesis has been put forward (Chapter II (1)) that the outcome of this battle between the will and old-established habits is largely a function of an inherent rigidity of basic drives and, therefore, best described as ergic (see Chapter IV) rigidity.

Rigidity is substantially inheritable, as shown by twin studies, but it is affected also by environment, notably in that it increases with fatigue, with neurotic exhaustion and with phases of inaccessibility in schizophrenia. Among psychotics, manics and hysterics tend to have low ergic rigidity, while depressive melancholics and deteriorating schizophrenics show a rigidity index going off the normal scale at the high end. Among normals both the very high and the very low individuals on rigidity tend to be defective in character integration—one of the few clear instances in psychology of a 'non-linear' relationship between two indices. However, people of high rigidity are likely to be worse in character and the overall correlation of character stability or integration (C in section 2 above) with rigidity is about —0·4 to —0·5.

That disposition rigidity and character integration must nevertheless not be regarded simply as opposite manifestations of one and the same underlying trait entity is shown further, however, by the appearance of correlations between rigidity and other major personality factors. Indeed the correlation with Dominance (E) and Surgency (F) are as great as with Character Integration (C). At this point we note that those three source traits are actually slightly positively correlated and that the correlations are compatible with a single factor operating behind the three factors. Such a factor is known as a *second-order factor*. The first well-known factor of this kind in psychology was demonstrated by Thurstone who showed that the factors of verbal ability, spatial ability, number ability, etc., could themselves be correlated and factorized to yield a second order factor of general intelligence. A second-order factor is a broader underlying influence which first-order factors have in common. Thus although the above abilities develop to a considerable extent independently their growth is partly dependent on the individual's endowment in general intelligence. The nature of the dimly illuminated second-order factors in personality is yet uncertain, and beyond the scope of an introductory discussion, but this one may well be a still more basic temperamental disposition which simultaneously favours (when measured as *low* rigidity) the development of good character integration, of forceful dominance and of a surgent disposition.

The notion that disposition rigidity is a second-order factor, back of the main source traits, would agree with its wide manifestations throughout personality. It shows itself even in interests and attitudes. Low rigidity is associated with interest in science, engineering, mathematics, 'abstract impersonal studies and the out-of-doors interests', while high rigidity is associated with history, drama, activities of personal emotional contact and with conservative and religious attitudes.

6. SUMMARY OF PERSONALITY MEASUREMENT

(1) To be meaningful, measurement has to take place with respect to real unitary traits, which we have called source traits. Each of these affects a wide range of behaviour and interacts with other source traits to determine any particular piece of behaviour.

(2) Traits can be assessed in terms of (*a*) behaviour ratings, from everyday life situations; (*b*) questionnaires, which depend on the way a man sees himself, and (*c*) objective tests, where responses are measured in a standardized situation.

(3) About a dozen unitary source traits have already been shown to exist in each of these fields of observation, but it is at present not absolutely certain which 'exteriors' match which 'interiors', while the full description of source traits in any one field is still lacking.

(4) Consequently, the measurement of only some four of the most important and best-established source traits (additional to intelligence, B) has been described here namely: (1) C, emotional integration or character stability; (2) F, surgency-desurgency; (3) E, dominance-submissiveness; (4) I, sensitive emotionality.

The nature of an important, but still obscure, second-order factor, called Ergic Rigidity, has also been sketched and the widely ramifying predictions possible from its measurement have been indicated.

MORE ADVANCED READING

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CHAPTER IX

PERSONALITY AND THE BODY: PSYCHO-SOMATICS

1. METHODS AND CONCEPTS IN BODY-MIND RELATION

THAT body and mind behave as two aspects of some underlying unity has been realized for thousands of years. To combat the easy over-emphasis on physical appetites religious leaders have perhaps counter-emphasized the separability and independence of the spiritual aspects of personality. Other over-simplifications have been introduced by the philosophers, seeking a solution to the riddle of the body and mind in some verbal formula of 'epi-phenomenalism', 'predestined parallelism' and so on. Although the ultimate form in which the relation of consciousness and electro-chemical nerve process will need to be conceived still eludes us, it is at least evident that there is interaction. Changes purely physical in origin, such as a deficiency of oxygen, affect conscious experiences, and resolutions of the will can bring about bodily changes.

As each year of research yields new facts the wonder of this body-mind relationship grows but it is a different wonder from the jejune paradox of the philosopher and opens up vistas of entirely new ways of conceiving the relationship. We can glimpse these vistas, but it is too early to expect a unified view. For the present it must remain a realm viewed through a number of successful exploratory penetrations which have not yet linked up and which may not do so for many a long year.

The connections between bodily conditions and personality have been sought in many fields of observation, notably in

(1) bodily changes associated with particular mental experiences; notably emotion; (2) bodily associations of mental diseases; (3) mental peculiarities appearing with particular physical diseases; (4) mental differences associated with differences of physical anatomy; and (5) mental differences associated with differences of physiology, notably of the blood stream. This includes abnormal changes of personality through drugs; (6) mental differences associated with anatomical and physiological differences, as in (4) and (5), but where the differences are in the central nervous system itself. We shall study them in this order, though it will be understood that since the same relationship has sometimes been demonstrated by more than one of these approaches the discussion of one will sometimes be carried into another division.

To convey any real knowledge here it will be necessary to assume that the reader knows some terms for bodily description, though uncommon anatomical and physiological terms will be explained.

2. THE PSYCHO-SOMATICS OF EMOTION AND THE ENDOCRINE SYSTEM

Ever since the speculations of James and Lange prompted the notion that emotion is the conscious resonance of visceral and other bodily changes, much research has concentrated on the physiological concomitants of emotional experience, most successfully in the work of Cannon and his students. It will become evident as we encounter the full range of bodily associations of personality that many are mediated by this link with emotion. By studying this central theme in body-mind relation at the very outset we shall improve our insight into the remaining themes, e.g. the relation of bodily condition and mental disease.

The reader of *General Psychology* (4) will know that for many years a part of the brain has been recognized—the hypothalamus—situated underneath the brain roof or cortex (which has to do with perception and thought) and dealing with the expression of emotion. From injuries to this walnut-sized lobe, or direct electrical stimulation of it, the fact has been deduced that the nerves from the hypothalamus quicken the heart beat, deepen breathing, produce the facial expressions of rage, laughter, weeping, etc., blanche the skin, arrest the movements of the stomach and stimulate the adrenal gland (via the pituitary gland, below the brain) and the liver to pour their secretions into the blood stream.

It is these last changes which, because they are not easily reversible, may produce more permanent effects if they are too often excited. The aim of the changes produced by the hypothalamus in rage and fear is to put the body on an emergency footing, that it may better defend itself. But it does so at the cost of stopping the slow digestive and other building-up processes, until the body, like a nation kept too long in the emergency state of war, suffers dangerous depletion. For example, the individual who is too often in a stressful state of emotion begins to suffer from indigestion and may in time suffer from stomach ulcers. A year after the stock exchange crash of 1929 the percentage of stomach ulcer cases in New York showed a marked rise. Or again, the rise of blood pressure produced by the more powerful heart-beat and the effects of adrenalin may be so frequently and strongly excited that it does not reverse itself, leaving the individual with a dangerously high blood pressure, which in turn may result in heart trouble, kidney disease or damage to the arteries.

Although the mind exercises its influence on the body through emotional states there are other media of interaction also, and some of them are very important. The adrenal gland mentioned above, which operates as one of the instruments in the orchestration of emotion, is one of a series of glands scattered around the body and known as the ductless or endocrine glands. They are small and tucked away in odd places, the adrenal gland sitting upon the kidneys, the thyroid spread like a butterfly or wide shield across the windpipe, and the pituitary half-hidden in a bony recess at the base of the brain. As is now widely known, the research of the past century has revealed that the extremely small amounts of *hormones* which these glands secrete into the blood have quite amazing effects on growth, bodily well-being and, especially, mental processes. For example, the individual deficient in thyroid hormone has slow intellectual and emotional reactions so that, if the deficiency is present through years of growth he finishes not only with the physical stunting of the cretin but also in a state of dull idiocy. The administration of thryroxin such as will raise the blood concentration by one part in a million transforms the sub-thyroid individual into a lively, quick-thinking, sensitive and intelligent person.

The hypothalamus controls to a considerable extent the working of the autonomic nervous system—a system of evolutionarily very old nerve chains and ganglia situated in the viscera, not in the spinal cord, and which control the vegetative processes of the body, e.g. digestion, elimination, breathing and the preservation of body temperature and circulation. The endocrines may also be considered part of this ancient system. The autonomic, vegetative system is divisible into two somewhat mutually antagonistic and checking systems—the sympathetic system and the parasympathetic system, the first of which is concerned with expressing the emergency pattern of rage and fear.

In this fear-rage pattern, as we have seen, the adrenal gland secretion plays its part and it is indeed roughly true to say that the autonomic nervous system and the endocrine system are interlocked. They have the common aim of regulating the adjustment of the organism to external changes, other than by the conscious, instantaneous action of the central nervous system. In the case of the endocrines, however, we encounter the more striking instances of body affecting mind, rather than mind affecting body (as in the autonomic system), for the endocrines are in the main at the 'periphery' of the autonomic system, affecting nervous activity more than they are affected by it. Some of the consequences of endocrine disorder in personality can now be briefly surveyed.

It has been found that excessive activity of the thyroid gland causes a person to be too active and excitable, to flush readily, show tremors of the extremities, to be nervous and irritable and to have a too rapid heartbeat. In contrast to the sub-thyroid cretin he tends to be rapid in thought, sensitive, intuitive, over-active and—according to some clinicians—of artistic sensibility. Sometimes the over-activity of the thyroid is due to purely physical causes, to tumours in the gland and so on; but most investigators find a history of emotional dependence, of strains too great for the individual and of psychological shocks producing prolonged anxiety. In other words, mentality-endocrine interaction is in both directions.

The individual with deficient adrenal activity tends to be lacking in energy and the ability to meet emergencies. The behavioural signs are complex because the adrenal gland secretes not one but several related chemicals. In the instance of extreme deficiency of one of these—in 'Addison's disease'—the sufferer remains cold and shivering because he cannot meet even the demands of temperature change. Generally there is decline in sex desire and onset of neurasthenia-like neuroticism and irrationality of behaviour, e.g. insomnia, poor judgment, loss of co-operativeness. Excess of adrenalin has been shown to lead to aggressiveness, nervousness and depression (perhaps as a result of inward turned aggression). It also causes premature sex development. As one would expect from the role of emotional excitement in postponing fatigue, adrenalin, which seeps into the blood stream through the activity of the autonomic nervous system, also has a fatigue reducing power when injected independently. During the war adrenalin, cortin and other derivatives were used by airmen on long bomber missions to restore their alertness and vigour if attacked when near the end of their journey.

The parathyroid glands, situated amidst the thyroid but quite distinct in function, regulate principally the calcium content of the blood. As we shall see in studying nerve physiology, this has profound effects on the personality, principally in raising general emotionality in states of low calcium concentration.

The pituitary gland under the brain has several secretions and we may note here only the most important. Its obvious effects are concerned with growth, excess of anterior pituitary producing giant skeletal growth. Since the pituitary acts upon other glands, notably the adrenal and the sex glands, being as it were the controlling member of the 'interlocking directorate' of the endocrines, it is difficult in personality reactions to pick out any which are specific and peculiar to it. Berman, considers the hyperpituitary person, i.e. the individual with excess, to be masterful, emotionally mature and cool, serious and intellectually active. Deficiencies of pituitary are associated with lack of appetite, loss of sexual drive, depression and sometimes a schizophrenia-like behaviour. It is at least certain that pituitary abnormalities play a decisive role in personality disorders, notably in 'problem behaviour' of delinquency, disobedience, vagrancy, moroseness and bullying, where pituitary abnormalities are found in quite unexpected frequencies.

That the sex glands play an important part in determining personality is a truism obvious without psychiatrists writing on the essential differences of the masculine and feminine personality! The sex glands secrete internal as well as external secretions, and each sex gland secretes the hormones of both sexes, though with that of its own sex predominating. The psycho-analytic observation that each individual is psychologically bisexual thus becomes explicable in terms of hormones and their effects on the interests, desires and temperament of the individual. One of the best confirmed findings with male sex hormone is that it influences 'dominance' behaviour as well as sexual characters.

3. THE EVIDENCE FROM MEDICAL AND PSYCHOLOGICAL PATHOLOGY

That the exaggerations of the abnormal reveal otherwise hidden relationships is as true here as elsewhere. We shall first ask what bodily changes have been noted in mental disease and later what personality associates have been found in physical disease.

There is no clear-cut physiological picture with any psychosis or psycho-neurosis. The nearest to such is the pattern of degenerative changes and growth failures found with greater frequency in schizophrenics than in normals. This schizophrenic picture includes degenerative changes in the endocrine glands, notably the sex glands, such that at one time attempts were made to cure schizophrenics by sex hormone injections. There is also reported deficiency of the autonomic nervous system and under-development of the circulatory system. The schizophrenic—at least the more constitutional type—seems relatively unable to maintain even bodily adjustment to environment, to heat and cold, to toxins and fatigue. His autonomic system is not efficient and there is even some evidence that his heart size, compared with the cyclothyme, is smaller in relation to the body. These characteristics at present seem better explained as part of the *constitutional* weakness of the schizophrenic, e.g. his greater liability to tuberculosis and mortality generally, than as degenerative *consequences* of this disorder.

Most of the associations found with manic-depressive disorder are those which would be consistent with emotional reactions being maintained at a too great intensity and duration. They include glandular disorders, high blood sugar, low skin resistance and disorders of calcium metabolism. Nothing observed in the general body physiology, however, is sufficient to account for the mental disorder, except in those due to alcohol poisoning, syphilis, etc., and these are discussed below in connection with the physiology of the central nervous system.

The view that *physical* diseases tend to be tied up with characteristic personality patterns has been accepted in principle by medical men ever since Galen and Hippocrates spoke of the *spes phthisica*—the tendency to a tense, unrealistic cheerfulness in lung tuberculosis. This particular pattern is somewhat doubted today, but others have been better substantiated. For example, it is recognized that the sufferer from anaemia is prone to suspiciousness, lack of sense of proportion and some paranoid delusions about himself. Since these are found in other conditions which prevent the proper supply of oxygen to the brain we may assume that this slight persistent failure of red corpuscle oxygen carriers has the same effect.

Dunbar (6) finds that sufferers from rheumatism and rheumatic heart disease tend to have a generally poor health record, to be unduly liable to infections and to be more than averagely active and emotional, with sociability, talkativeness, adventuresomeness and nervous restlessness. On the other hand, rheumatic arthritis, unlike diabetes (see below) is *less* frequent in the inmates of mental hospitals than in the general population. There is also some evidence that the diabetic tends to be above average in general emotionality and to have paranoid, and anxious-depressive traits.

Allergic disorders have long been recognized as tied up with some degree of emotional instability. R. L. Thorndike showed some correlation existed also with neurasthenic traits and feelings of inadequacy, while others claim to have observed, clinically, self-absorption, dreaminess and over-weening ambition. It is also reasonably established that those who are physiologically allergic to certain substances, e.g. hay fever victims, become more so during episodes of emotional tension and frustration.

That the sufferers from disorders of the liver—and the general metabolism upset of gout may be included here—tend to be irascible, morose and depressed beyond reason, has long been noted and correctly ascribed to the direct effect of the disordered blood stream on the brain.

On the whole, however, this field of data has to be analysed with extreme care. All physical diseases, by the frustrations of living they produce, tend to issue, secondarily, in personality changes. The actual associations established are slight and the directions of causation—as well as whether it operates by directly physiological effects or indirectly—remain to be demonstrated.

4. THE STUDY OF NORMAL PHYSIOLOGICAL VARIATIONS

Attempts to measure accurately the slight differences existing among normal people in the subtle balances of the blood chemicals and the functioning of metabolism generally have only recently reached a nicety at which correlations with personality can be sought.

Some of the most definite associations are with the source trait of surgency-desurgency (page 158-9). In the first place it is obvious that the change wrought by alcohol in the blood stream is (initially) specifically away from desurgency (anxious, depressed) towards surgency (optimistic, complacent, sociable, talkative, trustful). Secondly it has been found that other chemical differences of the blood—notably differences in cholinesterase—are associated with variation along the same continuum. Cholinesterase is a normal body product which destroys the acetylcholine generated around nerve endings by nervous action, for the latter might otherwise accumulate dangerously, facilitating nervous transmission to a point where the exchange centres would become jammed. It is presumably produced strongly when acetylcholine is produced in excess. Eysenck's results (Chapter VIII (3)) show that cholinesterase is significantly higher in desurgent (dysthymic, anxious, depressed) individuals. He also showed that saliva output is significantly greater in surgents, while the present writer has shown that the surgent pattern occurs with more alkaline reaction of the saliva.

All these physiological associations with surgency-desurgency may possibly turn on a single chemical consequence. High acetylcholine is known to go with good conduction at the nerve junctions (synapses) and it is suspected that alcohol (and other anaesthetics), conversely, block conduction at the synapses. Possibly, therefore, the surgent individual with his optimism, complacency and sense of well-being, is simply one whose synaptic conduction is naturally low, blocking off from his mind anxious anticipation and disturbing alternatives. He is by nature slightly intoxicated, just as the anxious desurgent is by nature born several drinks short of normality.

These and other physiological conditions can also be related to moods. In alkaline states of the blood the individual is usually in a more good tempered mood, while with acid states and in conditions in which the autonomic system has difficulty in maintaining its physiological purposes the individual feels fatigued, out of sorts and irritable.

In view of the present attention to vitamins it may be of interest to point out some mental connections of diet deficiencies.

It has long been known the severe vitamin B deficiency could result in the neurasthenic and even psychotic behaviour of beri-beri. Recently it has been shown that relatively mild deficiency also has its effects if continued over a long period. The individual shows diminished inclination to perform accustomed tasks, and an irritableness and unco-operativeness which make for poorer social adjustment. The most central change, as shown also by the present writer's Cursive Miniature Situation Test (in which a series of situations on a paper strip moving past a window are dealt with in rapid succession) is an increase in emotionality and in timidity. These symptoms are akin to anxiety hysteria or neurasthenia and may, of course, arise from other causes than the defect of nervous functioning brought about by vitamin B deficiency, indeed they are likely to occur whenever functional capacity fails to reach a fixed aspiration level.

Some of the most definite personality associations yet discovered have been with metabolic rate. The rate at which a person burns up oxygen can be measured either in the completely resting state, when it is called basal metabolic rate (B.M.R.), or under conditions of activity, but because the former is easier to define and measure most measures have been of the B.M.R. only. Individuals with a higher B.M.R. tend systematically to have also a higher pulse rate, blood pressure, and body temperature. In personality they can be shown to tend consistently to a higher activity level, to show more aggression and drive, to have more interest in athletics, to be more expressive socially and more enthusiastic in work. There is also some evidence that they are more successful professionally than individuals of the same intelligence with lower B.M.R. Although the thyroid affects B.M.R. the above 'syndrome' is not that of hyperthyroidism, indeed it is far more likely to be the psychological syndrome of low perseveration (page 164).

5. PERSONALITY AND BODY BUILD

Yet another of our approaches to the body-mind relationship is available in the studies of relation of temperament to physique. If the reader will refer to Section 4 of Chapter II he will find we have already studied the main outlines of the relationship—namely, three 'body types' as recognized by Kretschmer and Sheldon, which have some degree of relationship to three surface trait syndromes. Let us now examine the facts a little more closely. In the first place the students of physique cannot agree on classification. Some, like Rostan, Huter, Kretschmer, Sheldon and Viola, describe three components. Others, like Hippocrates (habitus phthisicus, habitus appoplecticus), Stockard, Eysenck, Sanford and various biologists, refer to two—one of length and one of breadth.

It is probable that this apparent divergence, as well as the conflicting findings of various researchers regarding the magnitude of the correlation (see Chapter II, page 37) between physique and temperament will be solved by substituting factors for clusters, or, least, resolving the surface traits also into factors. This requires that we discover the relevant factors in both fields—temperament and physical build—and then determine their relationships. The principal factors in temperament are well known. There are some three outstanding ones, A, F and E, influencing many of the fifty surface traits or clusters referred to above. But the factors in physique are still in debate and obscurity.

Burt, Cohen, Eysenck, Moore and Hsü, Thurstone and others agree in finding, in addition to a factor of overall body size, first, a factor of body girth, affecting circumference of waist and chest, and breadth of face, secondly, a factor of ruggedness of limbs, perhaps affecting also chest depth, and a number of other front-to-back measurements. There are also indications of other factors, notably one of head size, and it may be that in time these factors will be traced also into the more subtle characters, e.g. softness of general outline, heaviness of bone structure and relative smallness of hands and feet noted clinically by Sheldon.

Attempts to correlate body factors with temperament show that the general breadth (or circumference) component is tied up with cyclothyme as opposed to schizothyme traits, which is in agreement with Kretschmer's labelling both athletic and asthenic build 'leptosome' and observing that it is leptosomatic trends which are most associated with schizophrenia. The picture becomes somewhat complicated by Eysenck's finding of correlations between surgency-desurgency (F) and the general girth factor and of correlations between cyclothymic tendency and the chest depth factor; but perhaps relations existing in the extreme neurotic groups which he used, do not hold to the same extent in the general population.

In Diagram XIX an attempt has been made to simplify and summarize these results, though somewhat speculatively as far as physique goes. It is not speculative as far as temperament goes, for it can readily be shown that the surface traits of viscerotonia, somatotonia and cerebrotonia resolve into combinations of the basic personality factors A, F and E (Cyclothymia,

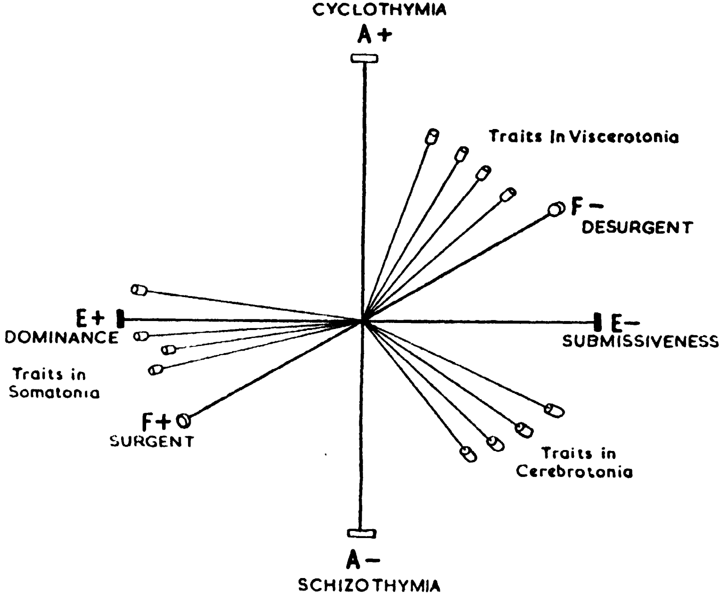

Diagram XIX.—Probable relation of Sheldon's Surface Traits to Personality Source Traits.

Surgency and Dominance) in the way indicated. Since the three-dimensional diagram may not be very easy to read, we may indicate here the projections of the clusters (the direction of which is brought out by drawing them as a collection of cylinders on wires).

Viscerotonia is largely A+, with some E— and less F+.

Somatotonia is largely E+, with little F— and less A—.

Cerebrotonia is largely A—, with little E— and some F—.

This explains the high negative correlation found between Cerebrotonia and Somatotonia, and the low negative correlations elsewhere among the surface traits.

If now we suppose that the body build factors align themselves so that the depth factor lies in the general direction of E and somatotonia; the girth factor in the direction of viscerotonia; and the general size factor in the direction of cerebrotonia, as yet observed correlations are all accounted for.

Whatever the relation of 'types' may prove to be it is at least clear that the narrow build goes with desurgent and schizoid characters, (anxiety, depression and sensitive seclusiveness), with autonomic imbalance (eye dilation, pallor, sweating, pulse rate, excessive physical emotional reaction) and also with rather higher intelligence, with school performance apart from intelligence and with better cultural background in the home. It is also associated with greater likelihood to stomach ulcers, tuberculosis and probably hyperthyroidism, brain disorders and pneumonia. The broad, 'pyknic' or 'endomorphic' is more prone to diabetes, gall bladder disease, apoplexy and, almost certainly, also kidney disease and heart disease.

What the causal connections are behind these undoubtedly real associations can at present only be speculated upon. Some connections with overall size and strength, such as greater dominance, lesser neurosis, lesser inhibition, as established by Cabot and Eysenck, are probably due to the big man getting his way more easily. But these associations with breadth are almost certainly a matter of temperament tendencies being determined by the same genes as determine the body build. (Even the association of narrow build with better cultural home background is probably due to the more sensitive, intelligent mentality tending to create a home in keeping with its temperament.)

The second important association of body characters with temperament—that of Mediterranean racial characters with high disposition rigidity measurements, greater emotionality and more artistic, dramatic and religious interests, has already been set out in Chapter II, Section 4. These body build-personality correlations are throughout of a low order. Nowhere can we point to anything above 0·7 and most are around 0·3; but they are significant. They mean that the individual's personality is definitely fashioned by something that is also in his blood and bone, but that these do not supply rigid limits—only fashioning 'tendencies'.

6. PERSONALITY AND THE CENTRAL NERVOUS SYSTEM

Some bodily characters affect personality by giving the individual greater or lesser energy to draw upon, by endowing him with slower or quicker emotional responses or even by giving him a physical impressiveness which causes other people to treat him differently. But the most powerful physical effects on personality, expressing themselves in the highest correlations, depend on the nature of the central nervous system itself, i.e. the state of brain and spinal cord, and these must at length claim our attention.

In studying abnormalities, as well as certain normal reactions, notably emotional responses and the endocrine system, we have already encountered chemical influences, e.g. acetylcholine, hormones and alcohol, which directly affect the functioning of the nervous system, and this view of physiological influences we should now extend and review. Comparatively early in the study of conduction along nerve threads it was found that increased concentration of sodium and potassium salts raised the sensitivity of nerves, while calcium salts lowered reactivity. Later, when it was realized that the parathyroid gland is the chief regulator of calcium in the blood, it became clear why disorders of this gland led to convulsions and tetanoid cramps—

the ordinary innervation of nerves to muscles ran too strongly and spread too widely when calcium was low. It was noticed also, however, that parathyroid upset produced increased excitability and emotionality, so that an individual would give almost psychotic over-reactions to trivial situations. Jeansch also isolated among normals a 'Tetanoid type' individual who characteristically had low calcium, peculiar, intense (eidetic) after-images, and a 'dis-integrate' emotional life. This last field of evidence needs further study, but in general there can be little doubt that small alterations in the ratio of the small amounts of potassium to calcium in the blood stream have major effects on the sensitivity and emotional balance of the total personality.

Equally striking associations are found with the *anatomy* of the nervous system, particularly with changes in the brain itself. In so far as the general brain function can be explained in a sentence we can say that the older parts—the hypothalamus and mid-brain—are responsible for emotional, vegetative and ergic (instinctive) reactions and that the overlying cortex, so much more developed in man than in other mammals, is responsible for more discriminating perception and memory, and for learned control of the emotions in response to civilized demands. Consequently it is not surprising that interference with the action of the cortex—temporarily through alcohol, oxygen lack, or low blood sugar or permanently through syphilis, concussion or physical removal of brain—produces loss of intelligent discrimination and of emotional control.

The localization of specific functions in specific parts of the brain is a task fraught with complications. It is certain that Gall and the phrenologists were wrong in localizing particular personality traits. On the other hand specific sensory powers and memories tend to be localized—e.g. auditory powers and associations on the side of the brain, visual discrimination and memories at the back. Similarly there are particular regions devoted to controlling specific muscle groups and movements. But localization is not too precise, and one region can take over, to some extent, the functions of another that has been destroyed. What we call intelligent actions—as distinct from repetitive habit—seems to involve the whole of the cortex and injury to it anywhere reduces the score on a general intelligence test, roughly in proportion to the amount of grey matter damaged.

Recently it has become evident that the frontal lobes of the brain, an area for which no specific function had previously been found, are more concerned than most others with control of the hypothalamus and its emotional reactions. Injuries to the frontal lobes thus produce more evident changes in personality than do any other changes in the central nervous system. The individual is apt to get more readily emotional than before, to lack inhibition and social sense. He also shows less perseverance, responsibility and initiative and is more prone to be distracted. These symptoms are seen not only in tumours and injuries of the frontal lobes, but also after encephalitis, which damages the whole cortex, but rarely after meningitis and not after infantile paralysis, which attacks only the spinal cord.

In the last fifteen years an operation has been performed on the hopelessly insane of severing much of the nerve connection between the frontal lobes and the hypothalamus (see Chapter VI, Section 5). This is based on the assumption that the frontal lobes are not exercising in these cases a beneficent control but are actually perverting, through unfortunate past experience, the normal emotional reactions. The results have undoubtedly been 'curative' in a majority of cases. The haunting fears, unceasing depressions and violent aggressions have ceased. On the other hand, as indicated in our study of psychosis (Chapter VI) the patient's score on an intelligence tests falls a little and his social behaviour shows some signs of simple-minded, childlike lack of restraint (15). It is the lesser of two evils. All in all, the frontal lobes are obviously to be regarded as one of the most important bodily seats of personality. It is with the frontal lobes that past emotional experiences are remembered and the results of behaviour are anticipated, with anxiety of punishment or hope of the pleasure of remote reward.

A device which promises some further light on personality and brain functioning is the electro-encephalogram, which magnifies by radio valves the tiny waves of electric potential continually given off by the cortex and which are discernible at the skull surface. Several wave forms exist, the most prominent being the α-wave of about ten per second. This wave breaks down in areas where there is damaged tissue, so that the E.E.G. can be used as a 'divining rod' exploring the skull surface for a brain tumour beneath. Placid individuals tend to have a regular, unbroken rhythm, more active minds show a more broken, pattern, while emotional and psychotic, uncontrolled individuals show a more marked 'ground swell' (delta rhythm) obliterating the α-rhythm. Relationships with personality in any finer sense are still obscure, but certain specific personality conditions can be recognized, notably epilepsy, which shows in the wave record a characteristic sudden high wave called the 'epileptic spike'. This is shown also by some close relatives of epileptics and by individuals who have not shown fits but who develop them later. It thus points to some peculiarity of brain physiology which shows itself in the epileptic personality and, under certain provoking circumstances, in fits.

7. SUMMARY

As indicated at the beginning of this chapter we have to be content with a summary rather than an integration, because the proven connections among the areas where knowledge is integrated are few.

(1) Emotion, expressed particularly through the sympathetic division of the autonomic nervous system, and involving the endocrine glands, is one of the chief links between mental condition and physiological condition.

(2) The glands of internal secretion powerfully affect growth, physiological state and personality, the personality developments and maldevelopments being to some extent specific and predictable for each gland disorder.

(3) Mental disorder is sometimes definitely associated with physical disorder. In some cases—e.g. poisoning by toxins of fever, or nutritional deficiency—the physical condition is primary, but the emotional disorders also induce physical changes. Similarily, specific physical diseases sometimes have associated personality changes.

(4) Normal variations in physiological measurements can be

correlated with personality differences, principally in the relation of surgency-desurgency to alkalinity and cholinesterase content of the tissues and the relation of metabolic rate syndrome to the second-order personality factor concerned with activity and dominance.

(5) Personality can definitely be shown to be related to physique—first in the relation of perseveration-rigidity to eye colour, etc., and secondly in the relation of breadth of body build to cyclothyme and surgent temperament. But the relationships are not simple.

(6) The principal personality associations with anatomical changes in the central nervous system are loss of intelligence (and increase of paranoid tendencies) with *general* cortical damage and loss of emotional inhibition, foresight and initiative more specifically with damage to the *frontal lobes.* Physiological differences and changes in the central nervous system may be studied chemically or by the electro-encephalogram. Differences in supply of oxygen to brain cells, or in the calcium-potassium ratio in the blood, by affecting cell activity and conduction among cells, produce personality changes in the directions that would be theoretically expected.

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CHAPTER X

PERSONALITY AND THE CULTURAL PATTERN

1. THE FAMILY: PARENTS AS SOCIETY

THE cultural pattern covers a multitude of influences—home, school, religion, government, way of life—in fact, the whole environment except those aspects which have only a minor influence, such as physical environment and climate. Physical defects and diseases have their significance for personality, but when the influence is not of the direct kind studied in the last chapter, they do so through affecting the individual's relation to society and his work and may be considered with the cultural pattern.

Family, school, religious and moral forces, etc., are all part of a single culture pattern, one part of which cannot be altered without altering the rest. Nevertheless we can consider these forces one by one before integrating them. Let us begin with the family, that small model of the whole society which first influences the personality and which contains reflected in its ordinances the moral laws and values of the larger society.

The family is defined by such variables as the personalities of father and mother, their attitudes towards the child, their attitudes towards one another, the happiness or conflict of the marriage, their attitudes towards social and moral values, the position of the child among his siblings, the position of the family economically and with respect to social sub-group, and so on. Most of these can be dealt with in this section: the rest in appropriate following sections. The above variables are those which the psychiatric social worker tries to assess, with a keen eye and ready ear, when she visits the home of some neurotic, backward or delinquent child, in an attempt to discover the environmental pressures which might be remedied for the benefit of the developing personality. The psycho-therapist working with the adult has, so far, restricted his work to the consulting room, believing that the moulding force of family upon personality has largely ceased by the adult years.

The parental attitudes which seem fraught with most consequence for the child's personality, and for which measuring scales have been designed in clinical practice, are: affectionateness, rejection, hostility, dominance, jealousy and over-protection. We have all seen rather large variations of parental affectionateness towards children, and differences in degree of dominance or coercion, and in degree of over-protection. For example, differences in the last are shown in that some parents encourage children to show much initiative and responsibility while others protect them from having to make decisions, from every physical risk, from joining organizations outside family control, etc., and are constantly worried about their eating, health, companions and school progress. Less frequently do we see rejection, jealousy or positive hostility—except in the case of delinquent children. Yet it is possible for fathers to be jealous of their sons and for mothers never really to accept, emotionally, the existence of their children, so that the latter experience the baffling emotional situation of rejection by a parent towards whom they have a need for emotional closeness.

Symonds (10) in an objective, statistical analysis of the relation of extreme attitudes in the parents to the subsequent personality of the child found that the child who had experienced rejection showed undue frequency of aggressiveness, rebelliousness, hostility, truancy, lying and stealing. Similarly the over-protected child is definitely prone to be withdrawing, over-dependent, infantile in emotional level, above average in vocabulary, poor in arithmetic, defective in social adjustment but obedient to authority. Symonds points out that the behaviour record of children with very over-indulgent parents is strikingly like that of rejected children, which agrees with the psychoanalytic observation that parental indulgence—particularly in the form of giving children material luxuries instead of attention, and in neglecting to make children face moral realities—is often a conscious reaction formation against a basic, unconscious rejection. Incidentally, as Flugel convincingly shows (6) 'ambivalence', i.e. the co-existence of 'logically' incompatible attitudes to the same person, e.g. love and hate, is not uncommon in attitudes within the family. The outcome of an ambivalent love-hostility attitude is not, as algebra might suggest, an attitude of indifference but rather a stormy composition of irrational indulgence in some matters and severity in others.

That parental rejection, at least when it occurs in severe form and in the earliest years, should lead to radical failure to develop moral sense (as in the psychopath or moral imbecile) is to be expected from psycho-analytic theory. If the affection relationship to the parent never develops, so that the Oedipus attachment never appears, no introjection of the parents' adult moral standards and inhibition can occur, and the basis of moral sense is missing. The present writer has described elsewhere (4) a typical case of this kind, where an intelligent boy, showing incorrigible lack of conscience, was found to have been rejected by the mother from birth. She described how he was 'wicked even as a baby, for when he was nine months old he scratched my face all over', revealing, by projection, her own hostility. In this case it turned out that the mother had herself been starved of affection as a child. She had married well, expecting to get out of her unsatisfactory home; but just when she saw before her the kind of life, with ease and good times, that she had promised herself, this youngster arrived—the first of four.

It is soon forced upon the psychologist studying family attitudes that the family extends to the grandparents and other remote relatives, in a network of cause and effect. The attitudes towards the children are what they are because of the parents' own childhood experiences, so that the treatment of a problem child really demands psycho-therapy of the parent, to reveal the roots of those attitudes which the parent is not capable of altering rationally. As Neill said in his early studies: "There are no problem children, but only problem parents." Due to the tendency for an individual unconsciously to identify his children with his parents—discussed lucidly by Flugel under the theme of 'reversal of generations' (6) —the child may have to cope with attitudes which his parents developed originally to their own parents or siblings (see next section). Statistical studies confirm these clinical hunches—notably with respect to the mother, where significant correlations have been found between family harmony and the harmony of the mother's parents, as well as the presence of antagonism between the mother and her own father.

The parental attitudes are also shaped by present conditions in the parents' psychological field, notably by the nature of their sex adjustment, by the dominance-submission relation established between them, by extra-marital relations, by health conditions, by satisfactoriness of vocation, by differences in general interests and tastes, and by reaction to becoming a parent. Differences of taste and viewpoint, especially as they affect discipline, have a deleterious effect on child character as discussed below. An unsatisfactory sex relationship can result in the aggressions of a general frustration, in breaks in the marital solidarity or, when the parents are of high character, in more oblique effects, especially the loading of the affection for the child with a more sexual charge. Many a son has experienced an overfond attitude from the mother, resulting in Oedipus fixation and later difficulties in his own adjustment to women, through a mother dissatisfied in affection for the father.

The main personality effects of the protracted exposure to parental emotional attitudes through the most plastic period of life may be summed up as:—aggressive delinquency from rejection; shyness and withdrawal from over-protection; insecurity, with over-compensation or neurosis from lack of positive contact and consistent guidance; and rebelliousness (anti-authority attitudes generally) from over-strict discipline by the parent of the same sex. Since these attitudes go back to the parents' evironment, the good psychologist, like an accomplished novelist such as Arnold Bennett in *The Old Wives' Tale* will begin to describe a character by describing the grandparent.

2. GROWING OUT OF THE FAMILY: SIBSHIP AND PLAYGROUP

Although the parents are the child's first 'object love' the normal child of three years and older forms his basic attitudes to other people on his experience with his siblings or constant playmates, while his parents more frequently fashion the stereotype of his reactions to authority and society as a whole. In Flugel's classic *Psycho-analytic Study of the Family*, one may see, with more detail than is possible here, how a man's attitude to his son or daughter may be fashioned on his earlier attitudes to younger brother or sister. The psychologist should never lose sight of the tremendous formative power of these early relations in shaping the capacity to love, to be jealous, to be dominant or submissive, cautious or open-handed in later relations with equals, subordinates, or leaders.

Parenthetically one may point out that this explains some of the peculiarities of the only child. The only child is in some ways maligned by the popular legend. On an average he is advanced somewhat in intelligence and scholastic abilities—a consequence of the unfortunate tendency for intelligent parents with good homes to have fewer offspring or only one child. He is also apt to show more adult standards of behaviour and to have fewer listed misdemeanours except negativism and temper tantrums. Only when the deeper dynamic adjustments and the capacity to give affection are concerned does the only child show defects. On an average he is slightly more prone to neurosis, more likely to be brought to a child guidance clinic and somewhat more definitely likely to be a failure in marriage.

The effect of sibling position may be briefly stated by saying that the oldest and the youngest are the positions which offer most personality difficulty. The first-born is slightly more likely to suffer from psychosis and, as a child, to require psychological help—after all, the parents have to practise the skills of parenthood on the first child. He tends to be less active and assertive, because more secure, but he has also some resemblances to the only child, e.g. more temper tantrums. Much has been written, especially by the Adlerians, about the effect of family position.

For example, it is said the the oldest child is more likely to be conservative, because the principal change he has known—loss of full possession of the parents through the arrival of the second child—has been for the worse. But the statistical collection of fact does not always bear out these convincing *a priori* arguments, e.g. radical-conservative attitude scales show the youngest to be rather more conservative. Undoubtedly the first child tends to show some deprivation symptoms on the arrival of the second. He may openly attack the child but more often shows anxiety symptoms due to loss and to suppressed aggression. Shortly thereafter he gains in psychological maturity through responsibility and the stimulation of affectionate protectiveness.

That the second or middle child tends to show over-compensatory reaction, as Adler suggests, is tolerably borne out. He lacks the easy-going, passive qualities of the first-born and is apt to be over-ambitious. The youngest child tends distinctly to have the highest perseveration-rigidity test score and to show the character disorganization (low C-Emotional instability) low E-(Dominance) and low self sufficiency) that goes therewith. The tendency to neuroticism that is part of low C has been observed to be more marked the more older children in the family there are. The youngest is unable to assert himself directly: he is tempted to resort to wheedling the parents and to dependence on authority; he has to cope with the inconsistent discipline of many 'authorities' and amateur ones at that. It is not surprising that there is some tendency, on an average, for his character development to be defective.

However, these position differences are slight compared with those between families or those due to individual differences in shuffling of the family genes or accidents of experience. The dynamic situation is different in every instance of the same sibling position, depending on differences in age and sex of siblings and many other things. Perhaps the most important point to keep in mind with sibling relationships is that, as Flugel has pointed out, the primary reaction of brothers and sisters to one another is hostility, upon which affection is a later development. The primary affection is directed to the mother, and siblings are at first only interlopers. Ambivalence is the essence of sibling relations and colours the personal attitudes that grow therefrom. One must also remember that siblings, by the closeness of their lives, are like so many brazil nuts in the larger shell; a protuberance on one requires an accommodating depression in the other, a general outgrowth of one leaves his neighbour with insufficient space to expand. These two principles—of basic rivalry and complementary formation—account for the almost universal tendency of siblings to develop as differently as they do in spite of related heredities.

The story of the neighbourhood play group or gang is not so very different from that of the sibling group—except in so far as the gang breaks away more completely from adult authority. It thus offers a half-way house between the dependent relation to parental authority and the eventual adjustment to society. For a while the gregarious erg rules among the little savages, and conformity to harsh and sometimes irrational rules of the in-group is the paramount virtue. Nevertheless the individual gains experience of law-making and a sense of reacting for the good of the group rather than to please mother. Sometimes this advance in personal maturity can be momentarily purchased at the price of delinquency. For the gang often creates an in-group sanction for the expression of the incompletely mastered anti-social feelings and aggressions of children, and they are bolstered by it to express against the greater society (but not against members of the in-group) the rebellion against the cultural pattern which they dare not express as individuals. Before proceeding further with the individual's fitting into the cultural pattern in school and vocation we must study in more detail, at this timely juncture, the whole problem of revolt against culture.

3. PERSONALITY AGAINST CULTURE: DELINQUENCY

There are many kinds of deviants from that typical majority of personalities which comfortably assume, more or less, the form required by the cultural pattern. Principally these are delinquents, neurotics, psychotics and leaders of genius. The first three have found the burden of the cultural pattern too much for them—and let us make no mistake that, psychologically considered, the cultural pattern, with its nagging 'don'ts' and 'do's', its extreme distortions of ergic needs and its endless complexities, is a real burden. To be uncivilized is psychologically less wearisome—but is apt to leave one cold, hungry, and bloody!

Psychotics escape right out of the culture pattern into unreality. Neurotics try hard to conform but do so at the cost of ruinous internal mental conflict. Delinquents prefer to have the conflict between themselves and society. Neurotics and delinquents have in common an incapacity to 'take' the cultural pattern, and a proneness to fall into the hands of psychologists. They differ in that the delinquent is generally under-inhibited and the neurotic over-inhibited.

Objective studies of delinquency are, so far, more reliable on children than on adult criminals, for one cannot be certain that prisons contain a fair sample of adult anti-socials whereas child delinquents, by virtue of their lower mental age and life experience are more frequently caught. The classical studies of Burt (in London) and Healy (in Chicago) have long supplied us with the main outlines of the difference, in personality and background, between delinquents and equivalent control groups of normals. The delinquent tends to be of low intelligence (average 85 to 90 against 100 normal), physically undersized, of high general emotionality (C factor) and probably high surgency (F factor). Of the other personality associations some are curious and unexpected. Generally there is a rebellious 'chip on shoulder' and 'anti-social grudge' attitude, a tendency to be overactive (judged due to insecurity, since encephalitis has been ruled out in these surveys), a tendency to be enuretic and poor in school performances relative to intelligence, but higher in mechanical aptitude than verbal abilities.

For the well-established relation with low intelligence clinical observation suggests the following explanations: (1) The less intelligent is less able to foresee the ultimate consequences of his actions or the likelihood of detection; (2) He is more suggestible to those who wish to exploit him; (3) In our complex culture he is more likely to suffer from persistent frustration of ergic needs; (4) At the same time, since the sublimations of basic ergs in music, art, etc., require intelligence to be easy and attractive, he is balked in alternative expression to a greater degree than the frustrated intelligent person; (5) Since intelligence is highly hereditary the less intelligent child is likely to be brought up by less intelligent parents, who, by using less intelligent methods of discipline, etc., are likely to produce less emotionally-integrated character. (This is shown also by a correlation of about 0·4 between the factor of general intelligence, B, and that of emotional stability, C.)

The influences in the individual's background proved to correlate with delinquency are: constant conflict and dissension between parents, broken homes, immoral parents, lack of any discipline or control, too severe and rigid discipline, bad companions, emotional maladjustment and unsatisfied ambition or affection in parents, immaturity (age) of parents, school difficulties, closely abutting rich and poor neighbourhoods, lack of recreation and much family migration.[1] Economic level as such has negligible influence. The role of certain of these circumstances becomes exaggerated in special cases (and in the eyes of people initially discovering one or the other!) but the general order of declining magnitude of influence is as given above.

Delinquency is thus a complex social and individual process. Innate and acquired personality traits, like low intelligence, low emotional integration (C factor), surgency, etc., operate, as also do cultural influences, like parental rejection, community disorganization, etc., which impair and confuse moral development or increase temptation. Most crime is the work of recidivists and

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[1] The following are typical data from an American city:

Districts (of Omaha)	Percentage of mobility	Percentage of delinquency
Ward 3	12·3	10·8
Ward 4	5·3	9·1
Ward 5	15·2	11·8

Shaw has shown correlations of 0·5 to 0·7 also with 'rate of growth of population', 'percentage of foreign born' and other measures of departure from settled organization and tradition in a region.

individuals who commit not one sporadic offence but a whole series. Crime, like schizophrenia and tuberculosis, rises steeply at adolescence, when the general reorganization of personality gives a chance for flaws to develop. It is very rare for a man to commit his first crime after the age of thirty-five and—if discouraged prison psychiatrists be heeded—one would say it is almost as rare for a criminal up to that age completely to reform afterwards. The crooked personality, like the more normal one, tends to be comparatively set by that age.

4. THE ROLE OF SCHOOL, OCCUPATION, RECREATION

To write of the school, that is, of education, in the space of a few paragraphs, may seem reckless to the point of stupidity. Yet what we know scientifically about the effect of the school on personality, as distinct from knowledge and technical skills, is little enough.

First we must get proportion. Studies of the relative moral influence of various 'institutions', on the individual, made in America, led to scores of 60 for the mother, 58 for the young person's closest friend, 40 for the father, 20 for the scoutmaster, 8 for the day school-teacher, and practically zero for the Sunday School. In the above mentioned study of Hartshorne and May and others, by correlating the attitudes of children with those of parents, school-teachers, etc., one can likewise get an estimate of the ultimate effectiveness of each source. One finds a correlation of 0·55 with the parents' views, 0·35 with those of the closest boy associate, lower figures with school and the club. By any approach, clinical or statistical, the influence of the home on personality far outweighs that of the school.

The influence of the school is more obvious because it is in the nature of a surface polish, but the reflection that morals are not manners and that bad characters occur in all school systems should be enough to show that no school—unless it be the nursery school—can radically alter personality. One must agree with the anthropologist Malinowski that 'the family (parents and siblings) has been (in all culture patterns) and largely remains, the main educational agency of mankind'. That is why social reformers are unrealistic when they maintain that a radical improvement of schooling could change the whole outlook of a population. It is undoubtedly possible in a generation to revolutionize a nation's technical efficiency or political ideals but only the slow forward struggle of all individuals in emotional learning can bring about those changes of personality and changes of heart which, over generations, produce a culture fine in the deeper essentials of culture.

The personality changes which school brings about are largely those modifications of the ego ideal or self-regarding sentiment through well-chosen models which are discussed in Chapter IV and those modifications of attitude which children who have gained independence will learn in friendly imitation and converse with equals but not from authority. The schools which have achieved a world reputation for a positive and striking moulding of character—the old British Public Schools—apparently did so by paying more attention to the personality of their teachers. They aimed at and obtained a very immediate personal imitation, but the world of books can also bring effective hero worship, and character ideals. In what has been described as 'friendly imitation' above comes also all that has been discussed under 'gang' psychology, for the individual learns to 'play the game' and many other emotional lessons, as much through friends and the group 'need to conform' as through authority and leaders.

There is, and always has been, debate as to how far the school *should* attempt to mould personality. On the one hand are those who point out that education should be something quite different from and more than mere training of the intellect. On the other hand stands the viewpoint, as expressed by Bernard Shaw, that the person 'who tries to mould a child's character is the worst kind of abortionist' (but which does not prevent Bernard Shaw trying to change the views of adults!).

In defence of the latter view, which occurs more in mature educators[1] and of certain laissez-faire practices of 'progressive' education, it can be argued that character is more affected by bad education than by good, as a human foot is moulded more by a bad shoe than a good shoe. For example, the education of far above averagely intelligent children in average classes and of borderline defective children in classes for normal children has been clearly shown to exercise a deleterious influence on personality. The bright child, marking time, becomes prone to idle habits, inattention, truancy, and contempt of authority; the dull child gets a severe sense of inferiority and of continual frustration which issue in delinquency or nervousness. School is a model of society, failures and difficulties in which can produce the same personality modifications, but a defective school system can more systematically produce such effects than the more accidental flaws of everyday living.

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[1] The immature cultural attitude can be illustrated by the following dictum of a prominent American educator writing on studies of 'race

Again, the 'progressive' schools claim that the imposition of correct moral habits and suppressions at too early an age, or by methods which induce repression, produces a great variety of personality defects, principally neuroses. On the other hand, lack of attention to necessary suppressions may produce personalities incapable of maintaining the cultural pattern. A famous anthropologist, Raglan, after comparing unfavourably the results of the savage's 'healthy neglect' of his children with our more suppressive guidance, says "It is far better (than laxity) to say 'You must brush your hair because I tell you to, and if you don't you will get no dinner. If you like to think hair brushing silly you can.' " Our cultural freedom of thought and speculation depend on this decent delay between thought and action. The civilized man is an introvert compared with the savage, and, as McDougall has pointed out, even among civilized societies, those with a more introvert pattern in individual behaviour have developed less rigid external regulation and greater freedom of

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prejudice', i.e. intelligent personal judgment as to the contribution which various immigrant groups are likely to make to American culture: 'The agreement of the students' attitudes with those *established as desirable by experts* was 0·90 or higher' (italics introduced). This implication that experts should decide what attitudes are desirable for other people is what Bernard Shaw has in mind. It is perhaps the same 'experts' in American education who have decided that the extravert is healthy but that the introvert needs 'social adjustment'!

thought. The manner of education may not affect personality very basically but it does affect aspects of personality of crucial importance in shaping the cultural pattern.

Consequently, whatever we may say about distinguishing education from its less honoured relatives, training and propaganda, we have to admit that as Mannheim says "Education does not mould man in the abstract, but in and for a given society". It is the agent for shaping the personality to the cultural pattern, but, if it is a wise agent, it will admit that, since the cultural pattern must grow, its aim is not to produce people *perfectly* adjusted to the cultural pattern.

Turning to the personality effects of vocation one encounters the popular view that each calling develops its own personality stereotype. That occupations tend to be associated with certain personality patterns is well borne out by psychology. But the popular explanation errs, as it does in the related explanation of the fact that married people tend to grow more alike. Research shows that they are prone (in happy marriages) to be alike (in physique, intelligence, attitudes) at marriage, and it seems to be true also that people of a certain personality tend to settle in appropriate occupations. On Strong's interest test, for example, the scores are very little affected by years of activity in a given occupation, yet they differ considerably from one occupation to another. If a man seems to have been turned by factory life into a rather dull, unimaginative person, reflect that he may be so because he always had the personality characteristics of a good, reliable, but unimaginative cogwheel. On the other hand, there is some evidence in the differential neurosis and psychosis rates of various occupations that particular vocational pressures distort personality slightly in different ways.

All in all, however, far more is known about personality and occupation in regard to choosing occupations fitted for various personalities; for example, we know that cyclothyme endowment favours dealing with people, higher dominance favours dealing with people and success in selling occupations and that certain specific levels of intelligence are found in specific occupations. This the reader may study in any work on mental testing (8) (10) (Chapter VIII (3)) or vocational guidance.

Although there is no 'perfect niche' for each person there is no doubt whatever that a given personality will succeed far better in one occupation than another. Nevertheless the interests of young people in occupations have been shown in general to be neither especially appropriate to their temperaments nor stable. At fourteen years about 50 per cent of children change their idea of their preferred occupation within a year, and this instability of vocational interest continues in a lesser degree for a majority of people in the early twenties.

Recreations, sports, and hobbies are again better indicators than moulders of personality. Their principal positive influence on personality seems to be in providing outlets which permit adjustment and stabilization of personality where the life situation might not otherwise permit it. In the young, play is constructive trial and error, as seen in make-believe and the 'play way' in education. In the mature, play operates more as emotional catharsis and recuperative relaxation from the strain of long-circuited activity. It may also act as an outlet for drives which never get expression in the main occupation, and this has led some psychologists to believe that hobbies are and should be different from, and supplementary to, the main occupation.

A survey of adult self-analyses shows that grown-up people pursue hobbies and sports consciously for physical pleasure, relaxation, love of beauty and nature, development of skill, the gaining of new social contacts, emotional release and the expression of creative abilities. Choice seems about equally divided among (1) educational-instructive recreations, (2) athletics and exercise, and (3) general sociability and passive recreation (attending cinemas and gossiping). People have most hobbies at adolescence, and gradually settle down to one or two. Intelligent adolescents have more hobbies than unintelligent, and middle-class people have more than those engaged in unskilled occupations.

A comparative study of four common, diverse hobbies—model engineering, music, photography, and stamp collecting—shows a distinct personality interest pattern in each. Model engineering, like several other hobbies, refutes the 'supplementation' theory by being the choice of men who spend their vocational life in engineering! Music is the choice of people with high general cultural interests, is generally unrelated to occupation and adopted long before the person has an occupation. By contrast, photography tends to get established after an occupation while stamp collecting has the latest 'onset' of all. Regarding general personality, Super concluded 'music is apt to be the avocation of vocationally and socially dissatisfied (and perhaps generally maladjusted) people'. Needless, perhaps, to add, all these observations are 'on an average'.

There is no doubt that, from the standpoint of personal dynamics, hobbies perform astonishingly varied functions. They expand an occupational interest, provide creative expression, round out the personality where the occupation is narrow, provide a substitute for neurosis in the maladjusted, open a tentative pathway to a new vocation and constitute a monumental gravestone over a deceased ambition, a career that might have been.

5. PERSONALITY INTEGRATES ORGANISM AND CULTURE PATTERN

In the final abstraction personality is the response pattern of the organism as it attempts to maintain certain internal chemical states, on the one hand, in the face of physical conditions of the external world and the behaviour of the group to which it belongs on the other. We have already examined serially some of the difficulties on both sides of this adjustment activity which we call personality. It is necessary to examine briefly one more limiting influence within the personality—physical defects—before we are completely equipped to summarize the relation to the culture pattern.

Some personality associates of specific physical disorders have been studied in Chapter IX, so that here it remains only to assess the effects of general physical handicap and sensory disability. The results are not easy to summarize but comparisons of individuals who have and who have not had much illness in childhood do yield significant differences, no matter how they are to be explained. If the illnesses occur before the age of six, the person is likely to be more emotional than he would have been, particularly in showing ready irritability and anger. If occurring in later childhood and adolescence, the experience is likely to show itself also in anxiety and fearfulness or timidity. Moreover, people of delicate physical constitution and those with records of greater illness differ significantly, as Symonds has shown, with respect to the dominance-submissiveness source trait, being relatively low in dominance.

The causation is still debatable. The increased general emotionality (negative C factor) associated with very early illness may be due to actual brain damage incidental to certain illnesses and their treatment. Children with birth injuries certainly show the same pattern, with increased distractability, lack of control of hyper-activity, and restriction of the general field of interest—as well as motor disability where there has been localized injury of the pre-fontal lobes. On the other hand, the same loss of emotional stability occurs in deaf children (together with some paranoid-like suspiciousness) who have not been deaf from birth, suggesting that it is a secondary result of attempting adjustment in face of far greater social difficulties. Again the incidence of neurosis (which is one expression of low C factor, i.e. poor emotional integration) is significantly greater in individuals whose physical disabilities are organically superficial but socially embarrassing. We notice, too, that in childhood the maladjustment from illness is greater in boys than girls, for in our culture a boy's self-respect depends more on his having a fit body, while in adult life neurosis is greater in physically disabled women, for fewer disabled women than men succeed in getting married.

In conclusion we note that the general physical disability pattern of low emotional stability, desurgency and submissiveness resembles the chief established second-order factor (a factor found by correlation among factors) in personality data (see Chapter VII), suggesting that the effects run through the whole-range from very slight to great physical disabilities which occur in the general population. It may be that most of this trend is explicable in terms of some general psycho-physical energy, less in those more subject to, or injured by, illness. To have more energy is to be able to meet most demands of men and nature more adequately and to be able to rectify the consequences of errors which would otherwise be more upsetting and frustrating. Conversely the tired person tends to be more submissive, more desurgent, and more emotionally unstable, so that persistent personality qualities of this kind might be due to some people being persistently, or even constitutionally, 'tired'.

With this gap in our view of the field somewhat rectified we can now turn to the general treatment of the problems connected with adjusting the typical organism, with definite organic limitations, to a cultural pattern which bends but little to those limitations, following laws of its own. The systematic strains engendered in this adjustment are varied. First, there are strains due to the community not permitting expression of certain biological drives. Chief among these is the restriction of sex expression, which, as Freud has stressed, constitutes the chief source of protracted conflict and neurosis. Again, there are cultures in which competition is heightened to a level at which, as Adler has illustrated, psychological casualties occur through insecurity and inferiority. Yet again, there are benevolent, patriarchal societies in which government continues to a considerable extent with the adult the parental guidance offered in the family contrasted with others in which the transition from parental protection to adulthood is accompanied by greatly increased freedom or licence as well as increased risk.

Obviously there are culture patterns in which it is easy to grow up and others in which it is hard. The general result of more repressive, competitive and difficult cultures is distinctly like the pattern found above for weaker organisms in a standard culture, namely, lower emotional stability, increase of inferiority reactions and of anxious desurgency. There is evidence also, as Huxley and Devereux have shown, that schizophrenia increases in frequency when primitive groups come under the 'protection' of more complex civilizations which bring their own pattern to bear. Apart from sequelae of total difficulty, there are, also, special hazards in being brought up in special societies. A few forms of insanity, like Amok in Indonesia and Imu in Japan seem peculiar to race or culture pattern.

All cultures, however, constitute, as we have seen, in some sense a psychological burden, despite the advantages which cause them to be maintained. Release from their complexity is sought individually in periodic recreation, or in delinquency, psychosis or neurosis and collectively in revolution, war or periodic saturnalia or holidays. Naïve psycho-therapists have concluded that if the culture pattern causes neuroses it must be given up. For example, if 'Victorian' or 'Puritan' sex inhibitions cause neurosis, the remedy is to remove them, and if competition causes casualties it should be abolished. The psychologist of personality has to deal with the culture pattern as it is, and can only state that to a considerable extent it must follow its own laws. But if there were space to enter social psychology we should see reasons why prohibitions are what they are, and where they could and could not be modified without major consequences in group dynamics.

One feature of any culture pattern which makes personality development difficult is dissension and lack of integration. Nothing contributes so much to the delinquent's inability to form stable moral attitudes as a rift between the parental authorities. The effects of community unrest and disorganization upon delinquency have already been statistically indicated. The general breakdown of morale and morality in certain historical catastrophes such as earthquakes and other dislocations of community and government, are well known.

There are, similarly, persistent deficiencies of integration in some communities which cause them to be constantly poorer in influence on personality. Healy, through a lifelong study of delinquency concluded 'one of the most important (determiners) of delinquency anywhere is the spirit of the community, difficult as this is to define'. Thorndike, in his famous research on psychological assessments of two hundred American cities found that the five highest in personality building score differed from the five lowest by having:

Frequency of completing high-school education twice as great
Illiteracy one fifteenth as great
Library circulation three times as great

Frequency of death from syphilis one twelfth as great
Frequency of death from homicide one ninth as great

This manifest correlation of effects indicates the operation of the 'intangible' spirit of the community.

Undoubtedly every personality is in the last shaping, a child of the community culture pattern. The basic structure of personality depends on individual heredity and individual situations and accidents of growth, but the qualities of final expression are in terms of the community pattern. Psychiatrists tell us that, just as the average Japanese has a high polish, so even Japanese manic-depressives are somehow more polite in their manic phases than the American manic! Whether the inter-cultural or inter-individual differences of personality are to be regarded as the more pervasive and important depends on our particular purposes in evaluating the personality. Admittedly the possibility of transcending the culture pattern lies hidden in the mystery of every individual, but very few—the men of genius—do, and they do so only in part.

6. SUMMARY

(1) Family, intimate comrade, school, and specific religious institution affect personality in that diminishing order. The social life within the family provides the pattern for most adult relationships and tends to fix the basic attitudes.

(2) Definite personality characteristics can be traced to particular parental attitudes, to position in sibship and perhaps to experiences in early group life away from the family.

(3) Breakdown of positive relation to the culture pattern, in delinquency, depends on certain hereditary, family background and community conditions, the relative importance of which can now be fairly accurately assessed.

(4) Formal education in the school affects personality less than it does intellect, though there are widely different philosophies of education which produce somewhat different results in this respect. Vocational choice is more a consequence than a cause of personality formation. Recreations and hobbies have

Protean psychological functions, but they generally operate as slighter agents of personality adjustment and a relation can be perceived between type of personality and type of recreation.

(5) Personality concerns the reactions maintaining internal chemical conditions in the face of external physical and cultural conditions, i.e. it is affected by conditions in both realms. Physical weakness of the organism consistently tends to produce certain personality traits. Complexity and difficulty of the environment produces similar traits—greater neurosis (lower C factor), submissiveness (lower E factor) and desurgency (lower F factor).

(6) Conflict and lack of governing stability in the culture pattern militate against personality integration, while the moral level of the individual also is in part a function of that of his community. The culture pattern is not responsible for some of the most basic differences in personality, but few personalities transcend their culture.

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CHAPTER XI

THE LIFE COURSE OF PERSONALITY

1. AGE CHANGES IN PHYSICAL AND MENTAL ABILITIES

THE studies of the preceding chapters concerning the description, structure, formation processes, and physical, hereditary and cultural influences in regard to personality have equipped us to attempt a culminating review of these in the setting of longitudinal development. The development of personality through the life span is, in fact, the most interesting and instructive of aspects, but it could not be appreciated until basic cross-sectional analyses of personality in being had been completed.

It has become a convention in psychology to section development into separate studies of child psychology, adolescence, maturity and the psychology of old age, and we shall give brief attention to each of these periods as such, but at first it is more rewarding to study the rise and decline of certain psychological functions through the whole life span. Let us desist, therefore, from quoting Shakespeare on the seven ages of man, or any other breakdown into periods, and view change first as a continuous curve.

Since the effects of the physical condition of the organism on personality have been demonstrated to be far from insignificant, it is necessary to glance first at the facts regarding physique and age. General, and especially muscular growth shows an acceleration at adolescence when the secondary sex characteristics manifest themselves also in changing bodily proportions and fat deposition; growth in weight, moreover, continues beyond the flattening of the height curve at about 18. The head goes on growing slightly in size and changing in bony shape, right through maturity to middle age. In woman, and more slowly and less severely in men, the general adolescent changes tend to be reversed in middle age; in old age there is a characteristic muscular and general physical shrinkage, accompanied by circulatory inefficiency and lowered metabolic rate.

Simple performances of speed and muscular strength show a smooth, rapid rise from birth to the middle twenties, followed by a slow decline, somewhat hastened after 45. If one compares with these statements about the average man the records by the outstanding performers in athletics and sports he finds a corroborative picture. Buhler found that the age of champions was, in sprint and long jump 23, long distance running 25, and tennis 28; while Wynn Jones found that in slower, more 'strategic' games the age was somewhat higher, namely, 31 in golf and 34 in cricket. Some of the simplest, single physical performances reach their maximum surprisingly early. In visual powers, and hearing, for example, 'senility' begins to set in from the age of about 18!

Turning to more general abilities we find, first, a trend in intelligence test measures which conflicts somewhat with popular notions but is too clear cut and experimentally well established to be doubted. This shows a rapid increase of general ability up to 14, a slow rise thence to a plateau from about 18 to 24 and thereafter a very slow decline, such that, by the age of 55 the level is back to about 14, as in Diagram XIX. This refers, of course, to ability apart from knowledge. Lorge (7), an associate of Thorndike, using the latter's intelligence test, showed, however, that if intelligence tests be given without a time limit, so that sheer difficulty and not quickness of thinking be involved, there is no demonstrable decline[1] after 20 and the curves keep on as shown in the intermittent line in Diagram XIX.

Ability to memorize or learn has been considered to decline

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[1] This and other considerations have led the present writer to the theory of *fluid and crystallized general ability* (4) according to which fluid general ability, involved in speed, and transferable to all situations, declines, but crystallized ability, involved in a lot of learned discriminations, remains unchanged.

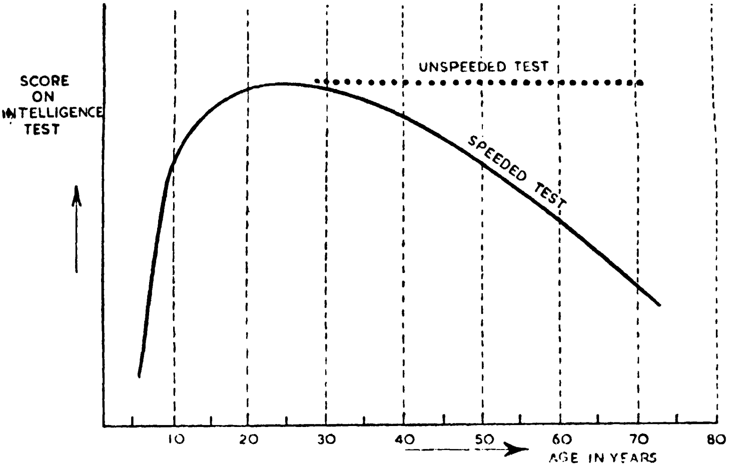

Diagram XX.—Changes in General Mental Ability with Age (from the Studies of Miles, Conrad and Jones, Lorge and the present writer).

rather rapidly, according to the adage 'you cannot teach an old dog new tricks'. But actual investigations show that if we take the age of 16 as constituting our 100 per cent learning standard middle-aged people (35 to 60) show from 70 to 100 per cent of that capacity, in most of the varieties of learning material studied, e.g. learning new languages, new motor habits, etc. Sheer modifiability, in which past learning does not help (as in disposition rigidity), is most affected by age. Even at 80 the true learning capacity still hovers between 45 and 85 per cent of the 16 year level. The reason that older people seldom learn new material seems to be lack of motive and interest rather than lack of capacity. However, we must bear in mind that though 'It is never too late to learn', learning and readjustment in later life certainly suffer some real reduction of efficiency.

Another attempt to discover the effect of age on abilities has taken the form of recording the ages at which famous works of art, science and literature were produced—while maintaining some constant standard of eminence. The results, as found by Lehmann and others, show that maximum productivity occurs in the thirties, but that masterpieces occur more in the forties. Scientific masterpieces occur later than those in the arts (but the reverse can be true for mathematics and those arts depending heavily on experience), as is illustrated by poetry contrasted with chemistry in Diagram XXI). One must not forget, however, that in politics, and sometimes in business, the outstanding 'masterpieces' of leadership have occurred in the fifties and sixties. Although learning capacity declines the total amount of knowledge and skill continues to accumulate, and, where intelligence rather than speed, and judgment rather than creation, are involved, complex mental performances can be expected to improve through the whole life span.

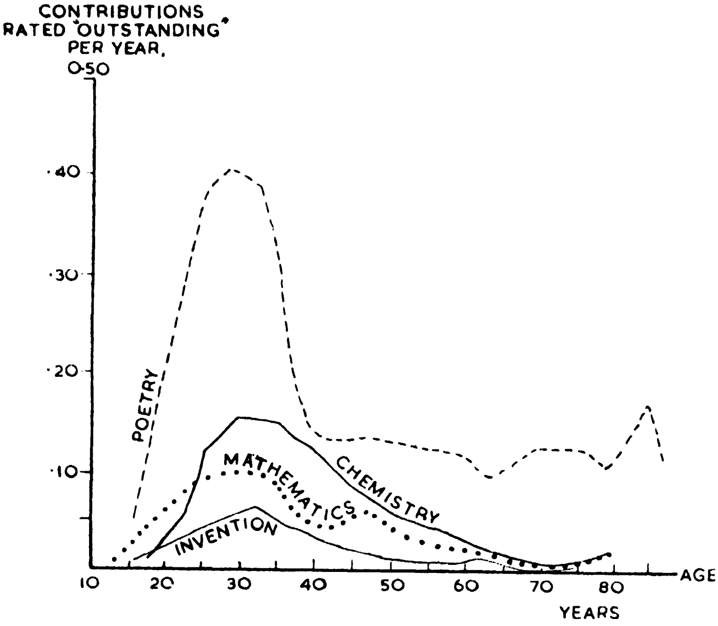

Diagram XXI.—Contributions by Outstanding Men in Various Fields. (Simplified from Lehman).

2. AGE CHANGES IN ATTITUDES, INTERESTS, SENTIMENTS

That interests and attitudes alter radically during childhood is obviously implied by our earlier discussions of affection and aggression fixations and of emotional development during the early life in the family. Measurement, unfortunately, has not yet reached down to these ages. Of infancy we have a general picture only, indicating, initially, narcistic interest in the body and concern with body manipulation and control. This is followed by a massive set of interests and attitudes regarding the parents, proceeding to attachments to siblings, make-believe play, the self-concept, etc. But from six on there are more precise data from 'time sampling' observations, preferences in activity, etc. Data presented and summarized by Pressey (8) show that between 10 and 20 years of age both boys and girls show a marked, steady decline in such physical activity interests as bicycling and roller skating and a steadily increasing interest in dancing and social affairs. The present writer's study of children's interests by another method showed a rise and decline in group games, hunting, etc., between 6 and 15 years and a steady rise in interest in sex, religion, and social life.

Between 20 and 60 the individual's interests are decidedly more stable than they have previously been, in fact, Strong found remarkably little change after 20 in the patterns measured. There are, however, certain consistent general trends. For example, there is a steady decline after 25 in liking for physical activities, such as driving a car, playing tennis; for social activities, such as smokers, full dress socials; for movies, for competitive situations, and for activities involving continual change. There is a corresponding increase in interest in reading and informative activities; in home rather than activities outside the home; in observing nature and gardening; in helping others with personal problems; in the association of intimate friends rather than of crowds, and in philosophical matters. As the weight of family cares is reduced, toward 60, there is typically a sharp increase of interest in hobbies, which declines again only with declining energy.

Studies of changing moral and religious attitudes are complicated by the fact that the culture pattern has also been changing rapidly, whence the difference between a 60 and a 16 year old may be as much accounted for by cultural as by personal history. In our first review of the organism-culture relation, in the last chapter, we assumed the culture relatively fixed, but as Pressey (8) shows, in the ten years from 1923 to 1933, students of the same age showed a drop of about $\frac{1}{5}$th in the number and variety of things considered morally undesirable. Evidently the swing from rigid Puritannical and Victorian ethics was going apace at that time, with results which remain to be seen. Nevertheless certain trends normal to the individual life course in our society can be separated out. Principally we note that the number of fears and worries reported declines rapidly in moving from infancy to childhood and even does so slightily in moving into adolescence, after which, however, the rise in adult responsibilities and worries sets in. That the adolescent period should show any decline is somewhat surprising, in the light of the conflict and readjustment which, as we see below, belongs to it, and though objective worries get fewer, it may well be that some moral anxieties get more intense.

The data showing that fears and anxieties decline from infancy to childhood fit in with general clinical evidence. The overall timidity and dependency of the infant decreases and, at the same time, aspects of the real world which are apt to be misperceived and distorted (danger of the dark, lightning, robbers, diseases, etc.), even in the best regulated upbringing, are put in place by increasing intelligence and understanding. Only the neurotic among adults retains as many fears and anxieties as the infant. Part of the decline is accountable also as a product of the growing ego's ability to deal with the super-ego and its primitive urgency. The 'thou shalts' and 'thou shalt nots' of infancy are characteristically absolute and urgent, and many of the superstitions and irrational fears which torment the infant mind seem to be projections of super-ego threats consequent upon imagined or trivial wrongdoing.

The number of things considered wrong or sinful shows a decline (apart from the above secular trend) from about the end of infancy through adolescence. The data of Buck show that children of twelve or thirteen consider about 50 per cent more things to be wrong, e.g. borrowing, staying out late, smoking, flirting, than do college students of twenty or so. Evidently the culture pattern, as passed on by the parents, plays for safety, banning activities as wrong when there is doubt and finding it easier to remove bans later than to impose them later. This gives to most adolescents the sense of emancipating themselves. It also contributes, less fortunately, to a swing towards radicalism engendered by the distrust of an authority which has imposed unnecessary restrictions.

The factual data in this and the preceding section will be examined interpretively in Section 4 below.

3. THE PRINCIPAL LIFE STAGES

I. INFANCY, CHILDHOOD, ADOLESCENCE

Let us now set the warp across the woof of the above threads by considering trends transversely from the viewpoint of periods—infancy, childhood, adolescence, maturity, middle age and senility. Little need be said specifically on infancy or childhood in view of the description of the emotional problems and personality changes therein given in earlier chapters (and available in another book in this series (2)) Infancy (0 to 6) is the great formative period for personality. There, in the relations to mother, in the reactions to the father, in the experiences of weaning and toilet training, and in the earliest reactions to siblings are built up the basic social attitudes, the degree of goodwill and the stability and strength of the moral super-ego, the sense of security or insecurity, the tendency to be with or against authority, and the strength of the various defence mechanisms which decide whether the individual shall be prone to neuroticism.

Childhood (6 to 14) by comparison with the preceding critical developments of infancy and the succeeding upheavals of adolescence is a period of plain sailing and consolidation. The physical proportions are more constant and the incidence of disease is lower than before or after. Psychologically there are likewise no problems akin to those of infancy, while the responsibilities of the adult world which fret adolescence with difficulties and anxieties are still far off. It has been called the period of the 'hardy little savage'. There is growth toward independence, out of the family into the gang or the general group of his peers, with a spreading of emotional contacts, contacts, affections and dependencies, in a 'homosexual sublimation' or fond gregariousness with many objects. Moral feeling is not deep: to do what everyone else does and what is decreed by the group, is the main regulation; but this is accepted as a rigid and unquestionable law. The chief virtues are those of personal prowess, of courage and of loyalty to the group. There is little intellectual questioning and little originality of thinking. That control of the body, which has occupied the child from infancy, has now reached practically a plateau of high skill, and preoccupation with physical skills as such declines hereafter, except where it is involved in the rivalry and assertion of adolescence.

Adventure stories are the chief reading diet. Successes and disappointments, and the general ego involvement of the self-regarding sentiment, centre most upon the school area, upon social acceptance in the gang and upon prowess in games. It is here that the child of limited intelligence shows his greatest frustration in school with resultant behaviour problems, while the physically defective or awkward shows the most typical Adlerian inferiorities and compensations. In general the mental life of make-believe is less than in infancy and less than the internal life and introspection of adolescence. Because the child longs for the status and privilege of adult life he may still have a vigorous day dream life, mostly of adult adventure, but he is primarily a realist and even a materialist.

That adolescence (14 to 23) is outstandingly a period of storm and stress and readjustment has long been understood by psychologically gifted literary men, e.g. Goethe, but doubt has existed as to whether 'endogenous' (biological) or 'exogenous' (cultural) difficulties were chiefly responsible. The personality stress that goes on in the average person is more strikingly revealed by what happens to the more extreme personalities. Between 15 and 25 years of age the curves of incidence of first delinquencies, both for those who offend once only and for those who become recidivists, reach high peaks, falling away towards minima in earlier and later years. Similarly mental disorders and neurosis rise steeply, indeed, adolescence shows the greatest onset for the commonest of mental disorders—schizophrenia dementia praecox (see Diagram XII, page 132).

These are merely special indices indicating a general difficulty in adjustment, dynamic integration and integration within society. Let us examine first the possibility of endogenous causation of the disintegration. Physical measurements show not only that various spurts in growth occur at puberty, but also that the proportions of physique alter, notably by heavier musculature, masculine ruggedness and feminine roundness, etc. The increasing concentration of the sex hormone, discernible a year or two before puberty, finally produces a whole set of physiological modifications. The physical disintegration and reorganization is revealed also by a rising susceptibility to disease ('outgrowing his strength') especially to systemic disorders. For example, as Burt has pointed out, the curve of incidence of tuberculosis is remarkably similar to those for schizophrenia and for delinquency.

On the other hand, there is no doubt that the endogenous changes—notably the irruption of the sex drive into an already balanced dynamic structure of drives—are only part of the difficulty. The culture pattern also presents a particularly difficult set of hurdles at adolescence, notably: becoming psychologically and economically independent; choosing a life work; adjusting to the game of courtship and finding a mate; taking over the full moral, religious and intellectual possibilities and responsibilities of the culture pattern. All cultures seem to recognize by some ritual a break between childhood and adult life and some arrange for an initiation period for entering the adult culture. But not all cultures have the various hurdles so closely coinciding, and in some the hurdles are lower. For example, as Mead has shown, the sexual restrictions in Samoa were by no means as severe or perplexing as those which youths in industrial cultures face, where adult responsibilities are enforced for years without the compensation of adult freedoms.

A considerable part of adolescent conflict arises from the increased strength of the drive to independence and self-assertion which is associated with increased sex drive and also with the new adult pattern expected by society. This development of self-assertion nevertheless begins with vacillating behaviour, e.g. bravado alternating with embarrassment. The vacillation springs partly from the youth's inner uncertainty, wanting to grow up yet wanting to return to family protection, partly from society's own uncertainty as to how far the individual should be regarded and treated as a grown-up and partly from the existence of such institutions as the school, which, however flexible they try to be, are apt to go on expecting the same pattern of conformity from the adolescent as from the child.

The greater part of the conflict, however, centres upon the developing sex drive and its derivatives by sublimation, etc. The individual's emotions experience innovation not only through the appearance of lust, the specific emotion of the mating erg, but also by powerful increments in the parental protective erg and in gregariousness. This introduces a sense of altruism and social belonging not felt before. The individual has to learn to control not only sex behaviour but also this increased capacity for sympathy, empathy and the need to give love where previously he received it, largely from the parents. It is from these sources that the adolescent draws that deeper quality and depth in intellectual activity and that nascent interest in social, political and religious problems, which observers have marked.

The sexual source motivates also the increased attention to smart appearance and manners, as well as the increased social and sexual awareness. Psycho-analytic studies show us that the sexual resurgence tends also to revive whatever 'abnormal' sexual fixations the individual acquired in the infantile period. It is true in general that the adolescent adjustments tend to some extent to repeat the modes that have been found useful before, but it is still more certain that the adolescent sexual life—the degree of auto-erotism, the type of sex object chosen, the pattern of constancy or conflict—will repeat at least in brief recapitulation, the infantile experiences. For example, there is frequently seen in those in whom heterosexuality has to some extent been covered by a 'blanket' repression of the Oedipus relation, a phase of more or less sublimated homosexual attachment. And there are 'crushes' on individuals whose position or characteristics make them both parents and lovers. Some of the reappearance of nervous or neurotic traits lost during middle childhood must be ascribed to this same sexualizaiton, but other instabilities arise rather from the disorganization already mentioned and now to be evidenced.

Evidence of some degree of personality disorganization is seen in the young adolescents, increased moodiness and irritability, in an unwonted instability, and in increased day dreaming, perhaps in the search for new ego ideals demanded by the changing self-regarding sentiment. (The last is inferred by the writer from clinical cases and such a renewed interest is not yet statistically demonstrated.) The child who had previously been reasonably obedient shows strange revolts and develops passing hostilities to the parents he loves.

This disorganization is partly the result of having to adjust to new expectations, partly of having to absorb new ergic forces into an old metanergic system. Trial and error experimentation has to go on. The gaucherie in self-assertion as the individual struggles out of the family and towards acceptance in the larger community arises from the same causes as the physical clumsiness in handling the new bodily strength and proportions. Experimentation and increased inner conflict lead to increased need for privacy, and the break from the family sometimes requires secrecy too. Poetry, religion, drama—the arts of emotionality and of love—come into their own. Indeed adolescence is the time when even the dullest clod knows that he possesses a soul; and it has been said of the genius that he lives in a perpetual adolescence.

4. THE PRINCIPAL LIFE STAGES

II. MATURITY, MIDDLE AGE, SENILITY

By 'maturity' is meant here specifically the period from about 23 to 46, though in our complex civilization there are some respects in which men and women can go on maturing until the day they die. Indeed, as Shaw indicates in 'Back to Methusaleh', one of the chief causes of defect in civilization is that we do not live long enough to use mature interests and judgment.

At the beginning of this period the average person solves willy-nilly and rightly or wrongly, the question of career; and perhaps also the problem of choosing a mate. The energies of adolescence become absorbed constructively in earning a living, building a home and rearing a family. In characterizing it as a busy and happy period, in which the chosen habits of adolescence become settled, we must not forget that we speak only of the majority. Adolescence has been a parting of the ways, and a minority has become shipwrecked in physical disease, in mental disorder, in a persistent inability to solve the questions of work and wife (the hoboes, the bachelors-about-town and the starving geniuses) and in fast hardening attitudes of delinquency or rebellion against established society.

Whatever course has been taken, there is ample evidence that the personality in general tends to become set. As we have seen, there is surprisingly little change of interest and attitude pattern between 25 and 50. This happens partly because psychological adjustment has been reached, partly because abilities and physical energy remain reasonably constant and partly because the external problems have decreased, harassing uncertainties have receded and the individual has generally become embedded as a substantial citizen in a stable community.

It would be a mistake, however, to regard this stability and busy absorption as sheer personality gain (unless the bourgeois life is one's religion). There is frequently a decline in the intellectual interests and breadth of view of the adolescent years. There is some indication that there is also, on an average, slight decline in morale, from the idealistic but not necesarily impractical goals of adolescence. The old German sychiatrist Möbius remarked that in all women, after adoescence, a certain degree of mental defect set in. He might better have included men too (though the lives of women in his period show the stronger 'busy-stable-"culture withdrawn"' pattern); for in most there is some loss of freshness and plastiity. In superposing, above, the congruent incidence curves of crime, schizophrenia and tuberculosis we might also have added he curve of revolutionary activity (as found by Davis for the ages of Russian revolutionaries), for socio-political activity of a reforming nature also appears most strongly in adolescence. It is this will-to-reform which also declines in the maturity period of the average man.

In complex modern societies, where people do not grow up and adjust to the whole culture as readily as in simpler, more rigid times, the problems that are likely to remain unsolved through this period are the individual's adjustment (1) to the intellectual, political, economic or religious values of his culture and (2) to marriage. No small part of the rising percentage of failure in the latter must be ascribed to people not being grown up at the time they marry, so that their growth curves diverge or both parties remain unadjusted and immature relative to the complexity of the world they have to live in. There is no space here to deal plurally with these problems of marriage which occur in this age period, but we may note two general principles which psychology has demonstrated: (1) Happier marriages occur with people who are more alike, in practically all respects as shown in Table 5. This similarity probably arises both from the need for immediate congeniality, and for a guarantee or reasonable expectation of a similar response to whatever new stimuli may be encountered. (2) In the marriage market there is a 'rate of exchange' between different but complementary desirable qualities—seemingly the qualities required to give the resulting family pair a good adjustment as a whole to their environment and to the standards demanded by social competition. For example, a person with social gifts may attract an individual who feels the need of them, and who offers in turn qualities which the other needs for completion. This principle is perhaps more readily seen in circumstantial, non-personal qualities, as when intelligence marries title or beauty wealth. If pursued beyond a certain point, it can obviously conflict with the first principle. Its existence is evidenced by the correlation (in married couples and friends of the same social status) of socially desirable but otherwise unrelated qualities, e.g. intelligence and emotional stability. The remaining aspects of marital adjustment concern situational dynamic processes rather than personality *per se.*

Degree of Resemblance of Married Partners[1]

TABLE 5

Trait	Correlation between spouses
Intelligence	0·5 to 0·7 (in different groups)
Education	·57
Values (Allport-Vernon test of personal values)	·23 to ·44
Attitudes (Thurstone scales on communism, birth control and various controversial matters)	·55 to ·65
Socis-economic status	·62
Height	·24
Weight	·27

Middle age, characterized by a relatively sharp menopause, with obvious glandular changes, in women, and a slower, but equivalent change in men, is again a period of personality readjustment. In this case it is comparatively certain that most of the readjustment is occasioned by inner changes, by decline of sex and its sublimations, loss of energy and an increase in physical ills. But an increase in leisure, through the departure of the children, through voluntary partial or complete retirement or through incapacities reducing one's sphere of activity probably also contribute appreciably to the need for readjustment. At any rate, in the forties and fifties there is often a re-examination of life values and a search for a philosophy not unlike that which occurred at adolescence, except for its greater composure.

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[1] From Schooley, M. Personal Resemblances Among Married Couples. *Abnormal and Social Psychology,* 31, 340 and other sources—347, 1936.

The meaning of senility is still uncertain. Research has not demonstrated which of the changes are normal and necessary and which are due to obscure disease. Some very old people retain their general intellectual capacity, for example, unimpaired till death, others show rather marked decline. Some, probably the majority, of very old people as now known, show restriction of interest, 'crabbiness' of temper and worries about economic and social state and physical health, while others retain their geniality through the frostiness of December. As in adolescence, the ageing individual has to cope with a vacillating uncertain attitude towards him by society. Is he still capable of holding the reins wisely or has he already shown signs of dotage? He has to face also the readjustment to loss of company—relatives, work associates, etc.—so that loneliness and lack of status and security become problems. As Pressey has aptly said, he suffers 'isolation from the swift traffic of life' and a feeling that it all goes on regardless of his views and needs. Some index of the problem may be seen in the suicide statistics, which rise towards old age—an index of declining satisfactions and increasing difficulties. A very different picture this seems from the poet's 'Grow old along with me, the best is yet to be; the last of life, for which the first was made'. Perhaps the values of our civilization are, in an unhealthy period, not such as to give due status and expression to the wisdom and interests of age. At any rate, because of our ageing population, psychologists are now beginning research on the psychology of old age which may answer questions that cannot now be answered here.

5. THE MEANING AND DEFINITION OF PERSONALITY

With this closing view of the story of personality, as far as it has yet been documented by modern psychological research, we may turn to the general question of what the scientific study of personality is aiming at. Is it a more profound, definition of personality? A better ability to define and understand any individual personality? An increasing completeness of prediction of what a given person will do in a given situation? Is it the aesthetic aim of producing more noble and beautiful personalities or the humanitarian aim of reducing neurotic misery and increasing the sum of human happiness?

The last—the aim of all applied science—does not directly concern the scientist more than it does any other human being. If the scientist produces new understanding, history shows that it will inevitably be applied to satisfy human desires. Because most people will make an effort for an obvious increase in well-being, and, also, for commercial reasons, there has never been a shortage of applied scientists, but there *has* always been a shortage of Galileos, Cavendishes, Faradays and Darwins, i.e. of men interested in pure understanding and ready to pursue that object without ulterior reward.

The aim of the scientific study of personality is understanding,[1] in all of the senses indicated above—definition, description, general laws and precise prediction or control. Let us examine how far these are yet achieved.

Philosophically, one may question whether there is anything in definition beyond what is given in description and prediction. In Allport's (Chapter VII (1)) scholarly survey of the origin and history of the term personality, we encounter, among his fifty definitions, such representatives of different approaches as Locke's revised 'individuality which has become objective to itself'; Goethe's view of personality as the 'supreme value' in life; the juristic definition of 'any individual enjoying legal status'; a sociologist's (Burgess's) definition as 'social effectiveness' and the related definition by the psychologist, May, as 'social stimulus value' or personality defined as 'the response made by others to the individual as a stimulus'[1] and Morton Prince's 'the sum total of all the biologically innate dispositions, impulses, tendencies, and the dispositions acquired by experience'.

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[1] Since we speak of science it is perhaps hardly necessary to point out that this excludes the purely intuitive understanding of personality, as in a fortune teller and in the German psychologies of 'Verstehen' and 'Gestalt' (except in perception, where the latter leads to scientific prediction). By 'intuitive' we mean a subjective sense of 'knowing' which is incommunicable to others. Good handwriting experts can go beyond a subjective conviction of understanding a particular case and actually make valid predictions. But the laws by which they claim to predict cannot be substantiated. Until 'understanding' can be put in objective symbols or communicated to others, so that experiments can be repeated with the same consequences, it is not science.

Many of these stress particular qualities of personality—its tendency to have a façade or layers, its uniqueness, its dynamic nature, its tendency to be integrated—but the whole escapes them, and perhaps in our present state of knowledge it is impossible to say what is essential about personality in a few words, for the foundation of precise but complex concepts which would need to be covered in these few words does not exist. That is true of connotative definition, i.e. definition which attempts to include all the far-flung connotations of that which is defined, or to describe in a nutshell. It is not true of the denotative definition given below, which like many precise scientific definitions, avoids description and says simply that so-and-so is 'that which' does some precisely definable operation.

Definition as concentrated description must therefore either deal with description from restricted viewpoints, confessed as such, or else ramify into a whole book—and still be incomplete, for to define a thing completely, thus, is to know *all* its relationships. So we come to the awesome fact that all entities or wholes we talk about are in fact only parts of the one whole that is the universe and never perfectly definable till we know the universe. Glimpsed in special aspects, however, personality can be defined, first, factorially, as *the dimensions of behavioural space for human beings*, secondly, biological, as *the patterns of reaction to the environment required to maintain internal chemical states* (homeostasis), thirdly, clinically, *as a more or less integrated set of originally discrete dynamic trends*, fourthly, sociologically, as a *transmitting and creating element in the culture pattern*, and so on.

[1] To turn, as in this definition, from personality as an objective fact and study merely its social repercussions (*not* the total environmental repercussions, from which personality can truly be deduced) is an interesting problem of social psychology; but it evades the real difficulties of personality study.

A single denotative definition is possible, as indicated by the present writer elsewhere, to the effect that '*Personality is that which determines behaviour in a defined situation.*' It is the unknown 'x' in an equation predicting behaviour from a given stimulus. More precisely an individual's behaviour can be predicted (in general, theoretically, and in actual performances, especially in the field of abilities, to an actual, practical extent) by the following type of equation (see also Chapter VIII).

$$P_{ij} = \underset{1.1}{s_{1j}}T_{1i} + \underset{1.2}{s_{2j}}T_{2i} + \underset{1.3}{s_{3j}}T_{3i} + \text{etc.}$$

where P_{ij} is the performance of the individual in the situation j, T_{1i}, T_{2i}, T_{3i}, etc. are the individual's endowments in abilities, temperament and dynamic source traits and s_{1j}, s_{2j}, etc. are the stimulus situation constants for the situation s_1 with respect to the source traits T_1, T_2, etc. For example, the prediction required might be with respect to performance in a game of chess, and T_1 might be general intelligence, T_2 persistence and T_3 general emotionality. Then s_1 would be very large and positive, because chess demands a lot of intelligence, s_2 would be appreciable, and s_3 would be negative since emotionality interferes with good chess play. All other source traits would be involved, in this as in every piece of behaviour, but presumably with negligible situational indices.

Now the structure which is implied by this 'specification equation' in factor terms is essentially the same as what the clinical and general psychologist means when he speaks of structure, i.e. trait structure, the ego, attitudes, etc. The two lines of definition converge. The only difference is that the specification equation abstracts, in a number of primary dynamic traits, only the most important aspects of the dynamic lattice structure. Actually this comparative reduction of emphasis on the dynamic in relation to the complete absorption in it by the clinician, presents a truer picture of the problem of integration of the total personality. Dynamic, ability and temperament traits are always acting as an approximately integrated whole, in which the dynamic traits assume whatever equilibrium positions are possible in an adjustment between the given abilities and temperament traits and the demands of the environment.

However, the total personality is not to be represented only as an integrated set of factors—integrated by their common action in the specification equation. Personalities differ not only in their factor strengths but also, (in respect to dynamic traits) in the particular, unique attachments of these traits to things in the environment. The common trait specification equation does not show this; for the situational indices are common and only the trait endowments are unique. But the equation derived from P-technique *does* show this, the loading in particular situations being peculiar to that person. The idiosyncratic history of the individual shows itself in these unique attachments shown by unique situational indices.

One must not forget that there are *two* general problems of prediction in personality: (1) Predicting what a given person will *do* in a given stimulus situation; (2) Predicting what a person of given endowments will *become* in a given environment. The laws governing the first are implicit in the above equation. Those governing the second are the general laws of psychology applied quantitatively to the particular endowments of the individual and the situation. It is the aim of all personality study to explain personality change in terms of a few basic laws of learning, of disposition rigidity, of conflict, of energy expenditure and of the nature of intelligence, etc., so that the calculation of developmental change can be encompassed by some such simple formulation as that given above for prediction of a reaction in a given situation.

Some general laws, of a relatively unconfirmed nature, can be formulated in this area. We can, for example, organize many of the facts about adjustment by a law of constant mental energy, according to which the investment of interest in one field tends to impoverish others. We can get approximate laws regarding mental conflict, such as the tendency of the more powerful drive to establish itself, the tendency for dissociation and repression with increasing intensity of conflict, and the tendency for ambivalence with increasing freedom of drives from conscious association and connection. Learning theory, though it has been too preoccupied with cognitive memory to the neglect of dynamic traits, is on the brink of crystallizing laws governing the effect of repetition and ergic strength upon habit formation and maintenance. And before long we may be able to calculate the effect—now dimly indicated—of various degrees of disposition rigidity upon the development and stability of new adjustments. These general laws have been discussed by the present writer in a more advanced treatise (5).

The study of individual differences thus has as its ultimate goal the understanding of entirely general laws. Psychology is only now beginning to realize that personality study has been the most effective path to that goal. Indeed the experimentalist, with the traditional philosophical attempt at naïve, direct approaches to mind in the abstract and to laws about basic processes, has been perhaps not only relatively ineffective but positively in error. Perhaps the true psychological laws—as distinct from physiological ones—can only be established when we study the reactions of *the organism as a whole.* Our formula above suggests that no item of performance by the individual is unaffected by all aspects of the individual make up, and the same is probably true of personality development, i.e. of prediction in the second realm of observation. Thus personality is the integration of the partial reactions of the organism, but it promises also to be the integration of psychology.

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SUBJECT INDEX

ABILITIES, effect of age on, 206-8
Abnormal, defined, 112
Adaptation, 90
——defined, 113, 114
——first, definition of, 90
Adaptation-adjustment analysis, 92
Addison's disease, 171
Adjustment, defined, 113, 114
Adolescence:
——as a life stage, 212
——development of self-assertion, 214
——effect of culture pattern, 213
——personality disorganization, 215
——physiology of, 213
Adrenal gland, emotion, 169
Aggressive drive, 72
Ambivalence among siblings, 191
Anal erotic character, defined, 126
Anxiety, 97
——defined, 99
——hysteria, 145
Association, 160
Attitudes, 46, 51
——age changes, 209-11
——defined, 50
——measurement of, 61
——as related to interest, 209-11
Autistic phantasy, 106

'BAD' behaviour, 112
Behaviour, 71
——dispersion, law of, 93
Body-mind relation, 168
Brain, 181
——frontal lobes, 182
——functions of, 181-2

CENSOR, function of ego, 102
Cerebrotonia, 178
——traits of, 179
Character, definition of, 21
——integration, 165
——measurement, 155
——neuroses, 123, 126
Child to parent attitudes, 189-90
——changes of, with age, 191
Childhood, as a life stage, 211-12
Cholinesterase, 175
Clinical observation, 72
Common traits, 144
Conditioned symbol, 98
Consistency (reliability) coefficient, 155
Construct, 50
Controlled experiment, 16
Conversion hysteria, 120, 145
Correlated behaviour, 86
Correlations, representation by angles, 140
Correlation coefficient, 18, 55
——defined, 138
——meaning of, 139
Cultural complexity, 202
——complication as a burden, 200
——disorganization, 202
——integration, 202
Culture and the delinquent, 192
——patterns and personality, 201, 203
Cyclical insanity, 147
Cyclothymes, physical characteristics of, 36
——traits, 147-8

DELINQUENTS, 192
——and environment, 193
——characteristics of, 192
——intelligence, 193
Description, personality, 135
Determinism, 25
Disposition rigidity, 89

Dissatisfaction level, 60
Dominance, 165
Dominance-submission, trait elements of, 161
——questionnaire data, 162
Dreams, manifest content, 104
——latent content, 104
Dynamic adjustment paths, 91
——crossroads:
——α, 91
——β, 92
——γ, 94
——δ, 100
——ε, 103
——ζ, 106
——investment, measurement of, 59
——lattice concept, 53
——structures, in personality, 65
——traits, definition of, 46
—— ——patterns of, 46
——acquired, 53
Dysthymics (desurgents), 160

EARLY libinidinal experiences, 117
Education, defined, 197
——of emotions, 90
Ego, 64, 82
——defined, 64
——defence mechanisms (dynamisms), 107
——factors, 86
Electro-encephalogram, 182
——described, 183
Emotion, defined, 168
Environment, 27, 30
Epi-phenomenalism, 167
Equivalence, 53
Ergic direction of attitudes, 61
——modification, 96
—— patterns, choice, 58
—— ——definition of, 69
—— ——in the rat, 57
—— ——known, 70
—— ——learning method, 58
—— ——obstruction method, 58
—— ——strength, measurement of, 58
——rigidity, 164
Ergs, definition of, 41
——aspects of, 41, 53

FACTOR analysis, 55, 72
——application of, 142-3
Factors, defined, 141
Factor A (Cyclothyme *v.* Schizothyme, 147-8
——B (General Intelligence), 166
——C (Emotional Maturity *v.* Neuroticism), 155-6
——E (Dominance-Submissiveness) 162
——F (Surgency *v.* Desurgency), 158
——I (Emotion *v.* Poise), 163
Family,
——attitudes of, 187, 189
——description of, 185
——effects of attitudes on, 186
Fear, 96
——of loss of control, 106
——-rage pattern, 170
Field of data, 19
Fluency of association, 139
Free association, 46, 72
—— will, 25
Frequency of mental disorders, 130-1
Frustration, 91-3
——-aggression hypothesis, 93
Functional autonomy, 95
——inadequacy, 113
——psychoses, 128
—— ——treatment of, 129
—— ——types of, 146
——unity, 136, 153
Functionally autonomous, 53

GOAL gradient, 49
——tension, 50
Gregarious erg, 80
Group factors, 56

HEREDITY, 27
——in psychoses, 33
Hobbies and personality, 198-9

Hypothalamus, 168
——and emotion, 169
——function of, 170
Hysteria-dysthymia, 158
Hysterics (surgents), 159

'ID', 64, 82
——defined, 64
Ideational experimentation, 106
Infancy, as a life stage, 211
Infant anxiety, 210
Inferiority complex, 123
——incidence of, 124
Inhibition, 127
Innate drive patterns, 69
——response, 107
Insecurity-inferiority, defined, 125
Instinct, 46
Integration, defined, 114
Intelligence, 89
——levels in occupations, 32
Internal conflict, 89
Introjection, 80
Intuitive, defined, 220
Ipsative standardization, 54

LATTICE diagram, 53
Learned skills, 75
Learning capacity, age and, 207
Leptosome, 177
Life record data (Behaviour ratings), 153
Low emotional stability, 156

MALADJUSTMENT, 119
Manic-depressive, description of, 147
Manifestation rate, 31
Marital adjustment, 218
Masterpieces of human achievement, 208
Mathematical factors, 141
Maturation, 74–5
——paths, 76
Maturity, as a life stage, 216–8
——change of personality in, 216–7
——defined, 216
——individual adjustment in, 217
Measurement, personality, 152
——defined, 153
Melancholia, 64
Mental disorders, frequency, 130
——structure, 46
Metabolic rate, 176
Metanergs (metanergic structures), 47
——rise of, 109
Methods of experiment, 17, 18
Middle age, as life stage, 218
——readjustment in, 219
Modification by learning, 45

NARCISSUS, 75, 77
Natural form, 68
Naturalistic approach, 71
Nature-nurture ratio, 29, 30, 31
Nemesism, 81
Nervous system, anatomy of, 181
—— ——influences on, 180
Neurasthenia, 145
Neuroses,
——as defined by Jung, 124
——causes of, 99
——clinical characteristics of, 125
——heredity of, 35
——production of, 117
Neurotic conflict, source of, 116
——hesitation, 100
——symptoms, formation of, 109
—— ——as defence, 119
Neurotogenic sequels, 115

OBJECTIVE tests, 154, 156
Obsessional neurosis, 145
—— ——incidence of, 122
Oedipus, 77
——complex, 75

Oral erotic, 78
Organic disorders, 145
——drives, 69

PARANOIA, 146
Parathyroid glands, 171
Parental attitudes, 186
——rejection, 187
—— ——example of, 187
Past punishment, 97
Performance, 224
Perseveration, 164
Personality, age changes, 205–8
——aim of scientific study, 220, 223
——definition of, 21, 46, 221–2
——development, theory of, 134
——effects of parents on, 180
——factors, *see* factors
——laws of, 223–4
——prediction of, 222–3
——traits, 21, 22, 24
Perversion, 101–2
Phantasy, 104
——conscious and unconscious, 109
Physical disability pattern, 199–200
——diseases, 173
——performance, age and, 206
Physique, asthenic, athletic, pyknic, 37
Pituitary gland, 171
Plasticity, conditions of, 89
Polymorphous perverse sexuality, 116
Presses, 54
Progressive schools, 196
Projection, defined, 107–8
Propensity, 46
——in men, 70
Psycho-analysis, first contributions of, 63
Psycho-galvanic skin reflex, 59
Psychological genetics, 26, 27
——study in animals of, 39
Psycho-pathic personality, 137
Psychosis, defined, 145
——dynamic processes, 127
Psycho-sexual constitution, 42
——defined, 118
Pugnacity, 93
Pure factor, 155
Purposeful, 49
Purposive, 49

QUESTIONNAIRES 154

RATIONALIZATION, 103
——defined, 108
Reaction formation, defined, 108
Realist, 82
Reality testing, 104
Recreation and personality, 198
Regression, 75
——as defence mechanism, 117
——ergic, defined, 118
——general, defined, 118
Reliability, 154
Repression, 102
——cause of, 98
Resolution of forces, 120
Response patterns to hinderance, 94
Restriction of ego, defined, 108
Rigidity, 164

SCHIZOPHRENIA, cause of, 128
——heredity of, 33
Schizophrenic, constitution of, 173
Schizophrenics, description of, 128, 146
——physical characteristics of, 36
Schizothyme, traits of, 147–8
School and personality, 194–6
Secondary drives, 74
——emotions, 53
Second-order factor, 165
Self-assertive drive, 80
Self-ratings, 154
Self-regarding sentiment, 84–5
Senility, as a life stage, 219
——attitudes in, 219
——in visual powers, 206

Sentiments, 46, 51–3
——definition of, 53
——measuring, 55
Sex glands, 172
Sexual libido, 72
Sibling, position effects on, 189–90
——relation, 190
Social mould traits, 56
Somatotonia, 178
——traits of, 179
Source traits, 144
——major defined, 148
Specification equation, 222
Stimulus situation, 51
Strength measures, 56
Sublimation, 72, 101–2
Subsidiation, 45–7
——methods of, 55
——paths, 62
——sequences, 52
Successful repression, 103
Suggestibility test, 157
Super-ego, 64-65
——beginning of, 79
——defined, 64
——development of, 83
Suppression, 97, 100
Surface traits, 144
Surgency, 165
——heredity of, 161
——measures of, 161
Surgency-desurgency, traits of, 158
——defined, 158
——physiological aspects of, 175
Surgical treatment of mental disorders, 129
Symptom, 119
——defined, 120
Synaptic conduction, 175
Syndromes, 145

TACHISTOSCOPIC test, 155
Temperament, study of animals, 40
——and physique, 177
Tendency, 68
Thyroid hormone, 170
Trait, 135
——defined, 137
description by, 135
Type, 135
——definition of, 136
——description by, 135

UNCONSCIOUS id, 121
Unique traits, 144
Unitariness, 138
Unitary dynamic trait, 58
——intelligence, 141

VALIDITY, 154
——coefficient, 155
Vector, 66
Visceral tension, 69
Viscerotonia, 178
——traits of, 179
Vitamin B deficiency, 176
Vocation and personality, 197–8

AUTHOR'S INDEX

ACKERSON, L., 204
Adler, A., 123, 124, 125, 126, 131, 133, 190, 201
Adrian, E. D., 184
Allport, G. W., 51, 67, 151, 220
Anderson, E. E., 56

BABCOCK, M. E., 44
Baldwin, A. L., 144
Bennett, Arnold, 188
Berg, I., 133
Berman, A. B., 172
Bleuler, E., 145
Blos, P., 224
Bolles, M., 133
Bowley, A., 224
Bravais, A., 18
Brody, M., 39, 40
Brozek, J., 59
Buck, W., 211
Buhler, C., 206
Burgess, E. W., 204, 221
Burt, C. L., 35, 37, 143, 144, 166, 177, 192, 204, 213

CABOT, P. S. de Q., 36, 179, 184
Cannon, W. B., 168, 184
Carmichael, L., 224
Cattell, R. B., 43, 60, 67, 130, 151, 160, 166, 184, 204, 224
Cavendish, Lord, 220
Chave, E. J., 67
Cohen, J., 177
Colman, R. D., 59, 60
Conrad, H. S., 207
Cruze, W. W., 68
Culpin, M., 122, 133
Cureton, T. K., 142
Cuvier, G., 135

DARWIN, C., 71, 134, 220
Davis, J., 217
Devereux, G. A., 201
Dorcus, R. M., 133
Draper, G., 38, 184
Dunbar, F., 173, 184

EINSTEIN, Albert, 20
Ellis, Havelock, 38
Eysenck, H. J., 86, 158, 166, 175, 177, 178, 179

FARADAY, M., 220
Fisher, R. A., 43
Fiske, D. W., 37
Flugel, J. C., 81, 111, 187, 188, 189, 190, 204
Freud, Anna, 107, 111
Freud, S., 42, 63, 67, 68, 69, 71, 74. 77, 87, 88, 98, 109, 116, 122, 126, 201
Fulton, J. F., 184

GALEN, Claudius, 135, 173
Galileo, 220
Gall, F., 181
Galton, Sir Francis, 18, 152
Gates, R. R., 43
Goethe, Johann, 220
Guilford, J. P., 151

HARDING, D. W., 88
Harman, H. M., 144
Hartshorne, H., 155, 166, 194
Healy, W., 192, 202
Hebb, D. O., 94

Hendrick, Ives, 88
Hippocrates, 135, 173, 177
Hirsch, N. D. M., 35
Hollingworth, L. L., 224
Holt, Robert R., 68
Holzinger, K. J., 144
Hooten, E. A., 43
Horney, Karen, 125, 126, 133
Hoskins, R. G., 184
Hsü, E. H., 177
Hunt, J. McV., 111
Hunter, W. S., 135
Huntington, E., 35, 43, 128, 136
Huter, S., 177
Huxley, J. S., 201

INGE, Dean Ralph, 148

JAMES, William, 34, 84, 168
Jeansch, E. R., 181
Jenkins, R. L., 162
Jones, Wynn, 206, 207
Jung, C. G., 74, 124, 126, 131, 148

KELVIN, Lord, 135
Kraepelin, E., 145
Kretschmer, E., 36, 133, 147, 151, 155, 177, 184
Kuntz, A., 184

LANDIS, C., 133
Lange, J., 34, 35, 43, 168
Lashley, K. S., 184
Lawrence, D. H., 108
Leeuwenhoek, A., 135
Lehmann, H. C., 207, 208, 224
Levy, D. M., 204
Linnaeus, C., 135
Locke, J., 220
Lombroso, Ceasare, 34
Lorge, I., 206, 207, 225
Luborsky, L. B., 144

MCDOUGALL, W., 22, 59, 65, 67, 68, 69, 71, 84, 85, 88, 93, 111, 196
McRae, Hugh, 59, 60
Macrae, A., 204
Malinowski, B., 194
Mannheim, H., 197
Maslow, A. H., 133, 162, 166
Masserman, J. H., 111
Maugham, Somerset, 108
May, M. A., 155, 166, 194, 221
Mayer, Robert, 34
Mead, M. S., 213
Mendel, Gregor, J., 31, 35, 43
Miles, W. R., 207
Mittelman, B., 133
Möbius, O., 217
Moore, J. E., 177
Mowrer, O. H., 96
Murray, H. A., 54, 67, 69

NEILL, A. S., 187
Newton, Sir Isaac, 15

ONSLOW, H., 38

PASTEUR, Louis, 15
Pavlov, I. P., 88
Pearson, Karl, 18
Pennington, L., 133
Penrose, L. S., 44
Phillips, M., 67
Plant, J., 204
Porteous, S. D., 44
Prescott, D. A., 67
Pressey, S. L., 209, 210, 219, 225
Prince, Morton, 221

RAGLAN, Lord, 196
Roback, A. A., 151
Rostan, L., 177
Ruckmick, C. A., 184
Rundquist, E. A., 39, 40

SANFORD, R. N., 177
Scheinfeld, A., 44
Schooley, M., 218
Schopenhauer, Arthur, 114
Schwesinger, G. C., 44
Sears, R. R., 111
Seward, G. H., 88
Shaffer, G. W., 113, 133
Shakespeare, W., 130, 205
Shaw, Bernard, 195
Shaw, C. R., 193, 216
Sheldon, W. H., 36, 37, 44, 177, 178
Shuttleworth, F. K,, 166
Smith, L. Pearsall, 85
Stephenson, W., 144, 151
Stevens, S. S., 44
Stockard, C. R., 177, 184
Strong, E. K., 43, 197, 209
Symonds, P. M., 81, 88, 153, 186, 204

TERMAN, L. M., 133, 225
Thomson, G. H., 144, 166
Thorndike, E. L., 60, 67, 152, 202, 206, 225
——Robert L., 174
Thrasher, F. M., 204
Thurstone, L. L., 67, 144, 165, 166, 177
Tolman, E. C., 49, 68, 88
Tomkins, S. S., 133
Tryon, R. C., 39
Tucker, W. B., 44

UNWIN, J. D., 101, 111

VERNON, P. E., 166
Viola, N., 177

WARDEN, C. J., 68, 88
Watson, G. B., 68
Webb, E., 143, 155
Wells, F. L., 160
Woodworth, R. S., 44, 69

YOUNG, P. T., 184

ZANGWILL, O. L., 184
Zener, K. E., 68

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